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The Assessment of Social Work Behaviors in 25 Navy Occupational Ratings

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The Assessment of Social Work Behaviors in 25 Navy Occupational Ratings

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The Navy Job Analysis Questionnaire for enlisted personnel was developed to expand traditional job inventory methods to include more explicit and comprehensive information about social interactions. Results of the administration of the questionnaire to naval personnel in 25 ratings at apprentice, journeyman, and master levels suggest that inclusion of social information in job analysis does make a difference. Clustering of naval ratings based on the inclusion of social tasks differs from clustering based on traditional nonsocial task inventories, although there is considerable overlap. Also, social task items (alone, collapsed into scales, or in conjunction with nonsocial tasks) can be used to predict grade levels high enough to be of practical significance.

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FOREWORD

This research and development was conducted within the exploratory development project RF 63-521-804 (Manpower and Personnel Technology), work unit 040-03.01 (Dimensions of Job Performance). The purpose of the work unit is to define general dimensions that describe the global construct of human performance at work and to identify measures of such dimensions. Such dimensions will provide a framework for estimating how effective a single measure may be in predicting job performance. This exploratory development was conducted under contract DAAG 29-91-D-0100, delivery order 1907.

This is the fourth in a series produced under this work unit. The previous reports described: (1) factors that made it inappropriate to try to use personnel record data to develop a surrogate measure of job performance that would generalize across ratings and grades, (2) a model of the principal dimensions that comprise human performance at work, and (3) a model of specific work-related social interactions and the factors affecting such interactions.

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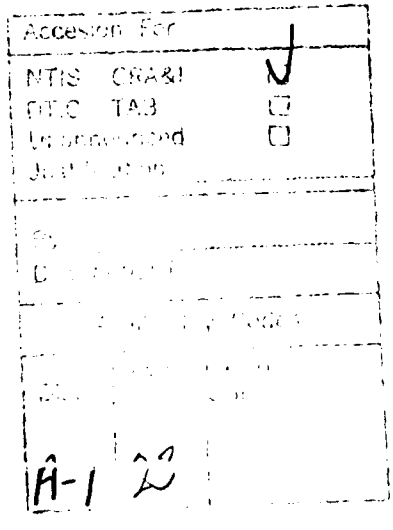

SUMMARY

Problem

The Navy has delineated a need for improved measures of on-the-job performance for use in setting enlistment standards and validating the enlistment standards to ensure fair treatment and superior selection and placement.

Objectives

There were two primary objectives of this research. The first was to assess the feasibility of developing an inventory-type job analysis questionnaire that can be administered economically within the Navy and can reliably assess social interaction aspects of Navy ratings. The second was to determine whether clusters of Navy ratings based on the results of current job analysis methods are the same as or different from those obtained when only the social interaction aspects of the work done in Navy ratings are explicitly taken into account.

Method

After the submission of a preliminary report in which the literature was reviewed and a model for job-related social interaction was presented, procedures were designed for expanding current task inventory methods to more adequately elicit information on social interaction. A questionnaire, the Navy Job Analysis Questionnaire for Enlisted Personnel, was designed using these procedures. It contained 215 task items (129 social and 86 nonsocial), an interaction grid for describing contacts with others, and supplementary questions about social interaction. Each social item had been assigned to one of 18 scales, and each nonsocial item to one of four scales (defined on the basis of nature of the task). Social items had also been further categorized, when possible, on the basis of 6 dimensions (related to social context of the task). The questionnaire was mailed to a sample of 1,440 randomly selected people in 25 Navy ratings at apprentice, journeyman, and master skill levels. The ratings were selected to represent the full range of variation in social interaction characteristics. Responses from 594 people were tabulated and analyzed using stepwise regression and cluster analysis to determine how use of the new task analysis method compared to traditional task analysis in the clustering of ratings and in the discrimination among skill levels.

Results

First, social interaction constructs can be reliably measured in an inventory format.

Second, social scales, social items, and nonsocial items predict grade at high levels. Nonsocial scales do not effectively differentiate grades.

Third, although there is some overlap, cluster composition differs when social, as opposed to nonsocial, information is used as the basis for clustering ratings.

Fourth, analysis of the contact grid suggests that the nature of the contact and the roles of participants in interaction do vary with grade level.

Discussion

Concerning the general research objective, the findings show clearly that social interaction characteristics of Navy ratings can be reliably measured and that this can be done in an inventory format.

Concerning the specific research objective, using different kinds of content (social or nonsocial) leads to different, partially overlapping clusters of ratings.

Our findings demonstrate, on a pilot basis, the feasibility of measuring social interaction characteristics and using that information as a basis for grouping ratings for personnel research and test validation purposes.

Recommendations

1. Additional research and development work should be undertaken with the Navy Job Analysis Questionnaire (NJAQ) to further define the social dimensionality of Navy enlisted jobs.

2. The NJAQ or its successor should be used in research intended to identify similarities in Navy ratings as a basis for grouping them for validation research purposes.

3. Application of the NJAQ should be expanded to encompass other ratings and, perhaps, officer ranks.

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INTRODUCTION

The Navy has delineated a need for improved measures of on-the-job performance for use in setting military enlistment standards. Military enlistment standards must be validated to ensure fair treatment as well as superior selection and placement.

The specific question that gives rise to this research is whether rating clusters, based on the results of current task analysis methods, will be the same as or different from those obtained when the social interaction aspects of work are explicitly taken into account. Though social interaction may be covered to some extent, no current task analysis method deals comprehensively with social interaction. Thus, the general objective of this research is to expand task analysis technology by developing a method to measure social interaction characteristics. Developing a method will enable us to pursue the specific research objective, which is to investigate rating similarity, in particular, to investigate whether rating clusters yielded by the items typical of traditional task analysis inventories such as those used by the Navy are the same clusters as those yielded by a task analysis procedure that focuses on social interaction characteristics. This is needed to determine which ratings should be combined into clusters of similar ratings for the purpose of conducting validation research on tests and military enlistment standards.

In a previous report (Hakel, Weil, & Hakel, 1985), we reviewed the extensive literature on social interaction coming from psychology, sociology, communications, and management science, recommended focusing on the "social task" as a unit of analysis, and made recommendations for task analysis practice. A social task is an action or action sequence including an interpersonal transaction designed to contribute a specific end result or the accomplishment of an objective. The social transactions comprising a worker's job should be described with respect to their nature, content, and participants. Social transactions may or may not be directly observable work outputs; whereas, traditional tasks will almost always be observable work outputs. This means that we are interested not only in the products or outcomes of work, but also, in the processes through which products and outcomes are produced.

Task analysis procedures such as direct observation and interviewing are easily modifiable to include a focus on social tasks. However, interviewing and direct observation are merely auxiliary techniques in military task analysis. In every branch of the service, task analysis and task classification are based on the quantitative analysis of responses to task inventories. These inventories are lengthy, containing hundreds of specific and detailed task statements. While no effort is made to systematically exclude social interaction information, these inventories tend not to get at the social content of ratings. Thus, the technical challenge to be met in this research is to implement our conceptual model of social tasks in an operational context, specifically, to develop items and administer them in an inventory format as a pilot study for what could be done on a larger scale should the pilot study be successful.

In the pages that follow, we describe the development and use of the Navy Job Analysis Questionnaire for Enlisted Personnel (NJAQ). Many of the items in this inventory resemble the content of Navy Occupational Task Analysis Program surveys. These items represent traditional task analysis items (though they are written at a higher level of generality in order to be applicable to more ratings). The remaining items in the NJAQ measure a variety of social interaction characteristics, identified in the literature we reviewed. We will investigate whether the scales defined by these items are reliable. The development of reliable scales means that social interaction characteristics can be

measured in an inventory format. If reliable scales are found, we will then study the relationships among these scales and grade ratings. We will also conduct cluster analyses using the traditional and new approaches. If the clusters yielded by analysis of social interaction characteristics differ from those yielded by analysis of traditional task statements, the project will have clear implications for test validation practice. In sum, this project is an exploratory study designed to test whether basic research findings from the research literature are applicable to the analysis of Navy ratings. It examines the feasibility of measuring the social interaction characteristics of Navy ratings using a task inventory.

METHOD

Overview

The analysis of social interaction characteristics of Navy enlisted positions was approached by creating a structured task analysis inventory, which was administered to a stratified random sample of personnel from 25 ratings at 3 skill levels. We first describe the procedures for selecting members of the sample and then describe the development of the Navy Job Analysis Questionnnaire for Enlisted Personnel.

Sample Composition

The original research plan called for identifying 24 ratings and surveying enough enough Navy personnel so that there would be a minimum cell frequency of 10 in each of the 72 cells defined by the combinations of 24 ratings and three skill levels (Apprentice, Journeyman, and Master). Preliminary conversations were held with representatives of the Navy Personnel Research and Development Center (NAVPERSRANDCEN) and the Navy Occupational Development and Analysis Center (NODAC) to identify 25 ratings to be covered in the survey. Subject matter experts nominated approximately 35 ratings for possible inclusion in the sample. They were asked to identify ratings that varied greatly in the nature of the social interactions that incumbents engaged in. Though the research plan called for 24 ratings, 25 were finally selected. Once they were identified, NODAC randomly selected personnel from Navy records to fulfill the sampling plan given in Table 1.

Based on our experience in the civilian sector, we expected to get a useable return rate in excess of 50 percent.

Mailing labels were generated by NODAC for members of the sample at the end of February, and the mailing took place at the beginning of June. The passage of time may have been responsible for a displacement of a large portion of the participants from the apprentice to the journeyman category because they were promoted from E-3 to E-4 in the interim.

Questionnaire Development

Considering both the objectives of the project and logistical and budgetary constraints, preparing and using a structured job analysis inventory became an easy choice. Instruments such as the Position Analysis Questionnaire (McCormick, Jeanneret, & Mecham, 1972) and the Job Element Inventory (Cornelius, Hakel, & Sackett, 1978) have shown great utility. We felt this structured inventory approach had excellent potential

Table 1

Composition of the Sample, by Rating and Group

	Rating	Apprentice	Journeyman	Master	Total
AB	Aviation Boatswain's Mate	20	20	20	60
AC	Air Traffic Controller	20	20	20	60
AG	Aerographer's Mate	20	20	20	60
AT	Aviation Electronics Tech.	20	20	20	60
BM	Boatswain's Mate	20	20	20	60
BU	Builder	20	20	20	60
DK	Disbursing Clerk	20	20	20	60
DP	Data Processing Tech.	20	20	20	60
DT	Dental Tech.	20	20	20	60
GM	Gunner's Mate	20	20	20	60
HM	Hospital Corpsman	20	20	20	60
IS	Intelligence Specialist	20	20	20	60
JO	Journalist	20	20	20	60
LN	Legalman	-	20	20	40
MA	Master at Arms	-	20	20	40
MS	Mess Management Specialist	20	20	20	60
NC	Navy Counselor	-	20	20	40
OS	Operations Specialist	20	20	20	60
PN	Personnelman	20	20	20	60
RP	Religious Program Specialist	20	20	20	60
SH	Ships Serviceman	20	20	20	60
SK	Storekeeper	20	20	20	60
ST	Sonar Tech.	20	20	20	60
YN	Yeoman	20	20	20	60
Total		440	500	500	1440

for being expanded to more comprehensively measure the social interaction characteristics of jobs. In addition, inventories are economical when contrasted with other techniques and consistent with what the Navy is already doing.

Two members of the research team, working individually, examined all of this information and identified or created some 216 task statements that conveyed some type or level of social interaction. These 216 items were sufficiently general to be applicable to more than one rating.

We then engaged in an extensive item editing process. The 216 statements were sorted into a preliminary set of content categories. This first sort was made to identify repetitious and redundant items, to rewrite or remove them, and to clarify the social interaction components of the items. Several iterations of this process of sorting and editing yielded a pool of 110 items that we judged to contain some social content. In addition, we selected 89 items from the Job Element Inventory (Cornelius et al., 1978) that we judged to contain no social content, modified their wording to be appropriate for

Navy enlisted personnel, and added them to the item pool. The determination of whether an item contained social content was based on our definition of the social task--did the item contain or imply a social transaction? Items such as "Work in an enclosed area that is hot? and "Maintain records" do not contain social content, whereas, "Attend training sessions" and "Trade 'chits' to get a job done" do.

We then made extensive content analyses of these items. Three staff members independently categorized each item. The category assignments were tabulated, and i cases of disagreement, group discussion was used to reach consensus.

First, the nonsocial task statements adapted from the Job Element Inventory were categorized according to whether they involved working conditions, physical requirements, tools and equipment, or miscellaneous nonsocial tasks. The 89 items assigned to these categories were not further content analyzed. Their category assignments are shown in Appendix A.

Seven alternate content schemes, derived from the research literature we previously reviewed (Hakel et al., 1985) were used to analyze the social task statements.

The first scheme represents the finest degree of differentiation among items based on their manifest content. All item categorizations are shown in Appendix A. The next six schemes are alternates to this first one, and it is important to note that any single item might be categorized somewhere in <u>each</u> of the seven schemes.

The first content scheme consisted of 18 categories for describing the manifest social content of the task statements. Each of the 110 social task items was categorized into one and only one of these categories:

Content Category	Number of Items
Advising	7
Conflict	4
Crisis	8
Developing others	4
Directing others	5
Self-development	2
Gathering information	9
Giving information	9
Handling routine situations	7
Influencing others	6
Informing others	8
Monitoring	8
Planning and organizing	6
Responding and cooperating	11
Sanctioning	2
Security	3
Serving others	5
Supervising	6

The second scheme consisted of analyzing how many others are involved in the action implied in the task. Thirty items were identified that involved social interaction with one other person, seven items involved interaction with two others, and 10 items involved

interaction with many others, a total of 47 items in all. The remaining 63 of the 110 social task items were uncategorized with respect to the number of others involved.

The third scheme coded whether the person doing the task initiated the action conveyed in the task statement or was the recipient of action coming from others. Thirty-one items were found to involve initiation of action and 16 were found where the person doing the task was the recipient of action by others. The remaining tasks were not categorized on this basis.

The fourth content analysis scheme involved the direction of information flow, a broader, more inclusive scheme than the third one. Nineteen items were identified in which the actor received information from others, 36 were identified in which the actor sent information to others, and 23 were identified, which involved both the sending and receiving of information.

The fifth content analysis scheme involved categorizing the social power of the person doing the task. Nine items were identified in which the actor was in an inferior power position, four in which the actor was in an equal power position, and 43 in which the actor was in a superior position.

The degree of dependence on others was analyzed in the sixth content analysis scheme. Thirteen items were identified where the actor clearly depended on others in order to perform the task. Forty-nine were identified that involved interdependent relationships. Fourteen were identified where the actor proceeded independently on his or her own volition.

In the seventh, items were categorized with respect to the extent to which teamwork was involved in task performance. We identified 43 social tasks that could be done alone, 16 that required some teamwork, and two in which the task could not be done without teamwork.

Appendix A contains both a copy of the final version of the Navy Job Analysis Questionnaire for Enlisted Personnel and all of the items that were included in each of the categories that made up the seven different content analysis schemes.

We used these content analysis categorization schemes because each was suggested by previous research findings from the literature we reviewed earlier in the project. Also, our research strategy called for studying groups of social task items to see the extent to which they defined constructs that could be measured operationally.

Following the content analyses, the initial draft of the NJAQ was sent to NAVPERS-RANDCEN and NODAC for review by subject matter experts. The reviews were particularly helpful in identifying proper phrasing and Navy terminology. Nineteen items were added to the social pool, and sections dealing with contacts, general questions, and ratings worked with on a daily basis were extensively revised.

Preparation and review of the questionnaire took about four and one-half months. Printing in optical-scan format required another one and one-half month, and the questionnaire was mailed to the members of the sample at the beginning of June 1986.

Analysis Plan

Our first analytic step is to investigate whether the participants who returned completed inventories are representative of the total sample Frequency distributions and chi-square tests are computed for rating and group, and other information about the sample is tabulated.

To investigate our general research objective of expanding task analysis technology to measure social interaction characteristics, we compute descriptive statistics for items and scales. We also compute scale reliabilities. These analyses will show whether we have succeeded in measuring the many different facets of social interaction.

To investigate our specific research objective of determining whether rating cluster composition changes when social information is the basis of clustering, we conduct two kinds of analyses. First, we compute stepwise regressions using the social and nonsocial scales to predict grade. This will show whether our scales differentiate grades or skill levels. If they do, then we can have increased confidence in their use in the second kind of analysis, cluster analysis. We compute separate cluster analyses for nonsocial and social scales, and correlate the rank orders of pairwise similarities to examine directly whether there would be changes in cluster composition.

RESULTS

Overview

The specific question that gave rise to this investigation is whether Navy ratings would be grouped differently if social interaction characteristics of those ratings were more comprehensively taken into account than is the case with current task analysis methods. As will be seen at the end of this section, the answer is yes. The inclusion of social interaction information does make important differences. However, before getting to the results that produce that conclusion, we must first examine several preliminary questions: sample representativeness, descriptive statistics for items and scales, and scale reliabilities and intercorrelations. We will then investigate how well scales and items predict pay grades. Finally, after examining the clustering of ratings, we will report two additional analyses, dealing with contacts and ratings worked with on a daily basis.

Sample Representativeness

The NJAQ was distributed to a stratified random sample of 1,440 enlisted men and women in 25 Navy ratings. By 15 weeks after the date of mailing, 594 questionnaires were completed and returned in useable condition, and a further 101 were returned by the post office as undeliverable. No follow-up was conducted. Thus, the total response rate was 48 percent, with 41 percent of the total original distribution being useable for the data analyses.

The return rates by rating are shown in Table 2. There was significant variation among ratings in the amount of useable returns (chi-square = 67.1, df = 48, $p < .05$). Inspection of Table 2 shows Legalman, Navy Counselor, and Master at Arms having the highest return rates and Boatswain's Mate and other ship-board ratings having the lowest rates.

Table 2

Frequency Distribution of Questionnaire Return Status by Rating at the Time of Sample Selection

Rating	Questionnaire Status: Not Returned N	Not Returned %	Useable N	Useable %	Returned by Post Office N	Returned by Post Office %	Total N
Aviation Boatswain's Mate	36	60.00	23	38.33	1	1.67	60
Air Traffic Controller	30	50.00	26	43.33	4	6.67	60
Aerographer's Mate	34	56.67	23	38.33	3	5.00	60
Aviation Electronics Tech.	31	51.67	27	45.00	2	3.33	60
Boatswain's Mate	41	68.33	13	21.67	6	10.00	60
Boiler Tech.	36	60.00	20	33.33	4	6.67	60
Builder	34	56.67	20	33.33	6	10.00	60
Disbursing Clerk	34	56.67	23	38.33	3	5.00	60
Data Processing Tech.	29	48.33	28	46.67	3	5.00	60
Dental Tech.	29	48.33	27	45.00	4	6.67	60
Gunner's Mate	29	48.33	24	40.00	7	11.67	60
Hospital Corpsman	25	41.67	25	41.67	10	16.67	60
Intelligence Spec.	28	46.67	27	45.00	5	8.33	60
Journalist	28	46.67	29	48.33	3	5.00	60
Legalman	13	32.50	24	60.00	3	7.50	40
Master at Arms	16	40.00	23	57.50	1	2.50	40
Mess Management Spec.	35	58.33	18	30.00	7	11.67	60
Navy Counselor	12	30.00	24	60.00	4	10.00	40
Operations Spec.	35	58.33	23	38.33	2	3.33	60
Personnelman	29	48.33	27	45.00	4	6.67	60
Religious Program Spec.	29	48.33	28	46.67	3	5.00	60
Ships Serviceman	36	60.00	20	33.33	4	6.67	60
Storekeeper	33	55.00	23	38.33	4	6.67	60
Sonar Tech.	35	58.33	20	33.33	5	8.33	60
Yeoman	38	63.33	20	33.33	2	3.33	60
Total	755		585		100		1440

Table 3 shows the return rate by group (Apprentice, Journeyman, or Master) across all ratings. Navy personnel at the Master level (E-7, E-8, and E-9) had a useable response rate of 57 percent, while for the Journeyman and Apprentice levels the respective figures were 30 and 34 percent. Chi-square is significant (chi-square = 102.2, df = 4, $p < .01$).

Sex and GCT scores were available for all members of the original sample. There was no sex difference in return rates (41% for each group), but there was a significant though small tendency for personnel with higher GCT scores to return their questionnaires in useable condition ($r = .15$).

Table 3

Frequency Distribution of Questionnaire Return Status by Group at the Time of Sample Selection

Group	Questionnaire Status: Not Returned N	Not Returned %	Useable N	Useable %	Returned by Post Office N	Returned by Post Office %	Total N
Apprentice	262	59.55	151	34.32	27	6.14	440
Journeyman	320	64.00	148	29.60	32	6.40	500
Master	173	34.60	286	57.20	41	8.20	500
Total	55		585		100		1440

Finally, Table 4 shows the composition of the sample of useable returns, broken down by rating and group. The chi-square for this table is not significant, a result that means there is no interaction between rating and group, given that one has made a response.

It is not known whether these return rates are similar to those of other job analysis surveys of Navy personnel. These results do show, however, that the analyses conducted in the following sections are based on data from people who are somewhat more likely than the typical sailor to be experienced, to be able, and to be in port or on land.

Other Characteristics of the Sample

Appendix B contains tabulations of many descriptive characteristics of the sample: current rating; rating trained in; grade; group (Apprentice, Journeyman, Master); rank of the respondent's commanding officer, department head, and division officer, type of command and duty station, size of the respondent's division; and 29 other variables. Inspection of these frequency distributions shows that the modal member of the sample is an E-7 under the command of a captain, with a commander for a department head, and a lieutenant for a division officer. The division has 20 or more people working in it and is located at a shore station. Of course there is wide variation on each of these characteristics.

Descriptive Statistics for Items

The NJAQ contained 215 items describing work environments, physical requirements, tools and equipment, and tasks and activities. Means, standard deviations, and n's for these items are presented in Appendix C. The item labels used in the appendix are abbreviated, but the numbers correspond to those used in the printed questionnaire.

Note that the response scale has been reflected from that printed in the questionnaire so that larger numbers imply a greater amount of time spent. Responses are now coded so that "Never" has a value of 0, "Seldom" has a value of 1, etc., and "More than 50 times a day" has a value of 7.

Table 4

Frequency Distribution of Useable Questionnaire for Rating and Group at the Time of Inventory Completion

	Grade Data Response								
	Missing		Apprentice		Journeyman		Master		Total
Rating	N	%	N	%	N	%	N	%	N
Aviation Boatswain	0	-	1	4.17	12	50.00	11	45.83	24
Air Traffic Controller	0	-	4	15.38	11	42.31	11	42.31	26
Aerographer's Mate	0	-	6	27.27	8	36.36	8	36.36	22
Aviation Elec. Tech.	0	-	8	29.63	8	29.63	11	40.74	27
Boatswain's Mate	0	-	2	15.38	2	15.38	9	69.23	13
Boiler Tech.	0	-	4	23.53	5	29.41	8	47.06	17
Builder	0	-	1	6.25	7	43.75	8	50.00	16
Disbursing Clerk	0	-	3	13.04	11	47.83	9	39.13	23
Data Processing Tech.	0	-	9	32.14	7	25.00	12	42.86	28
Dental Tech.	0	-	3	10.71	9	32.14	16	57.14	28
Gunner's Mate	0	-	2	8.70	10	42.48	11	47.83	23
Hospital Corpsman	0	-	2	8.00	8	32.00	15	60.00	25
Intelligence Spec.	0	-	4	14.81	9	33.33	14	51.85	27
Journalist	0	-	3	10.71	10	35.71	15	53.57	28
Legalman	0	-	0	0.00	11	45.83	13	54.17	24
Master at Arms	0	-	0	0.00	11	47.83	12	52.17	23
Mess Mgmt. Spec.	1	-	1	5.88	7	41.18	9	52.94	17
Navy Counselor	0	-	0	0.00	11	45.83	13	54.17	24
Operations Spec.	0	-	1	4.17	10	41.67	13	54.17	24
Personnelman	0	-	5	18.52	9	33.33	13	48.15	27
Religious Prog. Spec.	1	-	4	14.81	11	40.74	12	44.44	27
Ships Serviceman	0	-	3	14.29	9	42.86	9	42.86	21
Storekeeper	0	-	3	12.50	10	41.67	11	45.83	24
Sonar Tech.	1	-	4	20.00	4	20.00	12	60.00	20
Yeoman	0	-	4	20.00	5	25.00	11	55.00	20
Missing	3	-	1	12.50	2	25.00	5	62.50	8
Total			78		217		291		586

The reader is invited to inspect the results in Appendix C. Given the characteristics of the sample, the means are easily interpretable. Members of the sample spend more time working as part of a team or a group (item 18, p. C-1, mean = 5.84) than any other item and less time using mooring or towing lines (item 32, p. C-2, mean = 0.23) than any other item. Given the senior level of the sample and the preponderance of shore duty stations, these and many other of the mean findings make sense.

In no case was the proportion of respondents who omitted or gave ambiguous responses greater than 3 percent, therefore, in many but not all subsequent analyses, missing data points for individuals were replaced by the sample mean for the appropriate item.

Descriptive Statistics for Scales

As noted in the previous section, the items in the NJAQ were extensively content analyzed. Multiple content schemes were used, and each social item was eligible to be categorized in each scheme. The complete list of item categorizations is shown in Appendix A. Items assigned to each category were treated as scales: there was a total of 35 social and 4 nonsocial scales. For each of these scales, respondents' scores were computed by averaging the items assigned to it. Means, standard deviations, and minimum and maximum values of these scales are shown in Appendix D. Intercorrelations of these scales are shown in Appendix E.

Coefficient alpha was computed for each scale. These results are presented in Table 5. With only a few exceptions, the alphas are uniformly high. Nearly three-quarters of them are in the 80s and 90s, and the median is .84.

High alpha coefficients would be expected if each of the scales had high construct validity, but it might also result from a general response bias factor underlying responses to all of the items. Inspection of the scale intercorrelations in Appendix E shows many high correlations (in interpreting these correlations, however, please note that because of multiple keying of items due to multiple categorization, the intercorrelations between scales *from different category schemes will be spuriously high*). To check on the possibility of response bias, alphas were recomputed for each scale based upon row standardized data. Because individual differences in the interpretation and use of the absolute time spent scale could create a large general factor, each respondent's answers to the 215 items were standardized individually to a mean of 0 and a standard deviation of 1. Alphas were recomputed for these standardized responses, and they are reported in the second column of Table 5. If bias in the use of the response scale was the major determinant of responding, one would expect to find very low alphas in the second column. However, their magnitudes are still sufficiently high (the median is .62) to warrant proceeding with using the originally defined scales in subsequent analyses. In general, these results show that the hypothesized social interaction constructs can be reliably measured in an inventory format.

Predicting Pay Grade from Scales

The next step in the analysis was to investigate whether the scales could successfully differentiate among the pay grades from E-1 to E-9. To do this, the sample was randomly divided into a development group of 394 and a cross validation sample of 200. Stepwise regressions were computed for the social and nonsocial items separately. The complete results for these analyses are presented in Appendix F, and they are also summarized in Table 6. All 35 social scales were included in the first analysis, and the solution for the first 10 steps of the analysis is shown in the upper half of Table 6. The forward stepwise procedure was used for variable selection. A conservative criterion of $p < .15$ for addition of variables was used, and variable selection stopped after 23 steps with a squared multiple correlation of .61. Since stepwise regression is particularly susceptible to peculiarities in a sample, and because 23 was too large a number of variables to work with in a practical situation, it was decided after inspection of the results to further examine the solution for 10 steps. The multiple correlation at this stage was .75, accounting for 56 percent of the total variance.

This equation was used to score the scales in the cross validation sample, and predicted grade correlated with actual grade at a level of .76. These findings show that individuals' scores on the social scales are meaningfully correlated with grade. Inspection

Table 5

Scale Reliabilities

Item	Alpha	AlphaRS	K
All nonsocial items	.94	.83	86
All social items	.97	.83	129
Work environment	.77	.59	22
Physical requirements	.89	.75	27
Tools and equipment	.80	.66	17
Miscellaneous tasks	.90	.76	37
Advising	.88	.81	7
Conflict	.88	.76	4
Crisis	.88	.75	8
Developing others	.84	.71	4
Directing others	.71	.25	5
Self-development	.80	.75	2
Gathering information	.79	.60	9
Giving information	.81	.58	9
Handling routine situations	.67	.46	7
Influencing others	.72	.54	6
Informing others	.89	.81	8
Monitoring	.86	.73	8
Planning and organizing	.83	.68	6
Responding and cooperating	.80	.58	11
Sanctioning	.69	.55	2
Security	.50	.20	3
Serving others	.59	.47	5
Supervising	.92	.86	6
One other	.87	.55	30
Two others	.83	.60	7
Many others	.83	.55	10
Initiator	.94	.84	31
Recipient	.85	.62	16
Receives information	.87	.59	19
Sends and receives information	.86	.52	23
Sends information	.95	.84	36
Inferior power	.79	.55	9
Equal power	.54	.33	4
Superior power	.96	.88	43
Depends on others	.77	.47	13
Interdependent	.94	.77	49
Independent	.93	.84	14
Alone	.94	.76	43
Some teamwork	.87	.56	16
Team required	.27	-.14	2

Note. Alphas reported in the AlphaRS column are row-standardized, to remove the variance associated with individual differences in the use of the absolute time spent response scale. K is the number of items in each scale. Scales resulting from alternate content categorization schemes are grouped.

Table 6

Stepwise Regressions for Grade Predicted by
Social and Nonsocial Scales

Grade predicted from social scales = 5.82944276

+	(-0.68924520 X DEVSELF)	Developing self
+	(0.23463412 X GATHINF)	Gathering information
+	(-0.72636141 X GIVEINF)	Giving information
+	(-0.33576586 X HANDROUT	Handling routine situations
+	(-1.16219527 X RESPCOOP)	Responding and cooperating
+	(-0.78425508 X CRISIS)	Crisis
+	(1.47664085 X MOREOTH	Interact with group
+	(0.70126428 X INFERIOR)	Inferior power position
+	(1.62321856 X SUPERIOR)	Superior power position
+	(-0.21630135 X INDEP	Independent--proceeds on own volition

R_{dev} = .75 R^2 = .56 R^2 after 23 steps = .61 r_{cv} = .76

Grade predicted from nonsocial scales = 6.99601455

+	(0.25093916 X PHYSREO)	Physical requirements
+	(-0.35755230 X TOOLEQIP)	Tools and equipment
+	(-1.31854896 X WORKENV)	Work environment

R_{dev} = .21 R^2 = .04 R^2 after 3 steps = .04 r_{cv} = .12

Note. n = 394 in development sample and n = 200 in cross-validation sample. Forward stepwise selection with $p <$ =.15 for addition of variables.

of the variables and their weights reveals one especially interesting pattern: respondents who spend more time in both inferior and superior power positions have higher grades than those wh do not. Both variables have positive weights, a seemingly conflicting finding. However, these people spend more time both receiving and giving orders--they are more active in the chain of command.

The results for the prediction of grade from the nonsocial scales are shown in the bottom half of Table 6. There were only four nonsocial scales and three of them contributed significantly to the prediction of grade. However, R^2 was only .04, (R = .21). See Appendix F, pp. F-18 and F-19, for the complete results. This equation was applied to the cross-validation group, and the resulting correlation was .12. While these correlations are statistically significant ($p < .01$), they have very little practical usefulness for

differentiating grades. General differences in physical requirements, tools and equipment, and work environment were negligible contributors to the determination of grade.

Comparison of the two equations is straightforward. The social scales effectively differentiate grade, whereas the nonsocial ones do not. Grades are much more easily recognized from their social aspects than from their nonsocial ones at the scale level of analysis.

Predicting Grade from Items

The nonsocial scales did not work well, so we decided to investigate the prediction of grade from responses to items. Because there was a limited number of nonsocial scales, the scales may have provided too gross an aggregation of nonsocial information contained in the 86 nonsocial items. Therefore, two further analyses were made, this time using items rather than scales. They are reported in Appendix G, and summarized in Table 7 to facilitate comparison with the results for scales shown in Table 6. Once again, forward stepwise regressions were computed with a criterion of $p < .15$ for variable inclusion.

For the 129 social items, the R^2 after 22 steps was .72, .11 higher than for the social scales. To facilitate comparison with the scales, the equation at step 10 was selected for further investigation. R^2 after 10 steps was .64, .08 higher than for the scales. The equation was cross-validated with a resulting correlation of .75. Using the 10 best items was equivalent to using the 10 best scales.

The bottom half of Table 7 shows the results for the 86 nonsocial items. Here after 26 steps, the R^2 was .64, .60 higher than for the nonsocial scales. To facilitate comparison with the social items and social scales, once again the equation for step 10 was selected for further investigation. Here R^2 was .52, much higher than for the nonsocial scales and also approximately the same as for the social scales. Cross-validation of this equation yielded a correlation of .59, showing that the 10 best nonsocial items were significantly better than the nonsocial scales and only slightly poorer than the social scales and items. Inspection of the items included in this equation shows an interpretable pattern of negative weights for those describing working conditions and physical requirements and positive weights for those involving writing and inspection.

The results of these analyses show that equations based on the social scales, social items, and nonsocial items predict grade at levels high enough to be of practical significance.

Cluster Analysis of Ratings

Having seen that the scales and items possess suitable psychometric properties and that all but the nonsocial scales are highly related to grade, we come to the question that generated this investigation: Does the grouping of ratings into occupational clusters of ratings change if social characteristics of work are the basis for clustering? To investigate this question, three pairs of cluster analyses were computed. In each pair, the first analysis was based on nonsocial information and the second on social information. The first pair was an analysis of the scales, the second an analysis of items, and the third an analysis of scales for 50 Rating x Group combinations.

In each of the following analyses, ratings rather than individuals were clustered. Means were computed on the relevant variables for all people within each rating. Then these vectors of means were cluster analyzed using Ward's hierarchical cluster analysis

Table 7

Stepwise Regressions for Grade Predicted by Social and Nonsocial Items

Grade predicted from social items = 5.95285393		
+	(-0.14143881 X I43)	Perform tasks that require you to be calm and controlled
+	(0.12630555 X I66)	Judge peoples' abilities and personal qualities
+	(-0.25372298 X I93)	Carry out medical, biological, or chemical test procedures
+	(0.21099286 X I116)	Contribute to discussion in meetings
+	(-0.28102757 X I120)	Receive directions, instructions, and assignments
+	(-0.25472661 X I124)	Attend training sessions
+	(0.31835465 X I136)	Advise others on job, career, or professional matters
+	(0.27441063 X I170)	Evaluate the performance of subordinates
+	(0.29114095 X I176)	Conduct meetings
+	(-0.24503495 X I206)	Act as phone talker
R_{dev} = .80	R^2 = .64	R^2 after 22 steps = .72 r_{cv} = .75
Grade predicted from nonsocial items = 6.07556884		
+	(-0.12234240 X I3)	Work in an enclosed area that is cold
+	(-0.15001542 X I15)	Work where ear protection is required
+	(-0.55107437 X I28)	Use tools with long handles (e.g., brooms, shovels)
+	(0.39945259 X I29)	Use hand-held powered tools
+	(-0.17319200 X I39)	Work in a squatting position
+	(-0.13653775 X I48)	Use finger movements (e.g., drawing instruments, keyboards)
+	(0.11163411 X I71)	Inspect products, objects, materials, or equipment
+	(0.21487333 X I129)	Write technical or status reports
+	(0.21454511 X I165)	Assign priorities to tasks
+	(0.27418272 X I171)	Write performance reports on personnel
R_{dev} = .72	R^2 = .52	R^2 after 26 steps = .64 r_{cv} = .59

Note. n = 394 in development sample and n = 200 in cross-validation sample. Forward stepwise selection with $p < .15$ for addition of variables.

procedure. The first step in such an analysis is the computation of the statistical similarity of all possible pairs of ratings. Next, these similarity values are used to

organize the ratings in order from most to least similar, a similarity rank order. Then, ratings are grouped iteratively and hierarchically on their pairwise similarity. The similarity rank order, however, contains important information about which ratings are likely to appear in the same cluster. Correlating these rank orders from separate cluster analyses of social and nonsocial information gives us a direct test of the extent to which social-task content makes a difference in cluster outcomes. If the rank orders correlate close to 1.00, it means that social content and nonsocial content give the same clusters, regardless of the number of clusters chosen for interpretation. A correlation close to .00 means that task analysis based only on nonsocial tasks is deficient--grouping jobs on the basis of that content alone would result in an incomplete picture.

Note that this analysis plan is focused on determining whether there is any difference between nonsocial and social information. This is done by computing separate cluster analyses for each set of data. The question of what incremental differences the addition of social task content to traditional task content makes is left for future research. Such a question could be investigated with the present data set, but the nonrepresentiveness of the return rates would make the interpretation of such an analysis problematic. Therefore, we will stick to the original objective of simply trying to determine whether social interaction information yields different results.

The first pair of cluster analyses were computed for mean rating vectors on the sets of 4 and 35 scales. The complete tree diagram for the analysis of nonsocial scales is presented in Figure 1. The diagram shows graphically the history of the hierarchical clustering procedure, beginning with each rating in its own cluster (at the bottom) and ending with all ratings in one cluster (at the top). Across the top, the ratings are presented in order of their pairwise similarity. When similarities are computed in terms of the four nonsocial scales, Aviation Boatswain's Mate and Air Traffic Controller are the most similar at one extreme and Navy Counselor and Legalman are the most similar at the opposite extreme. Aviation Boatswain's Mate and Navy Counselor are the most different.

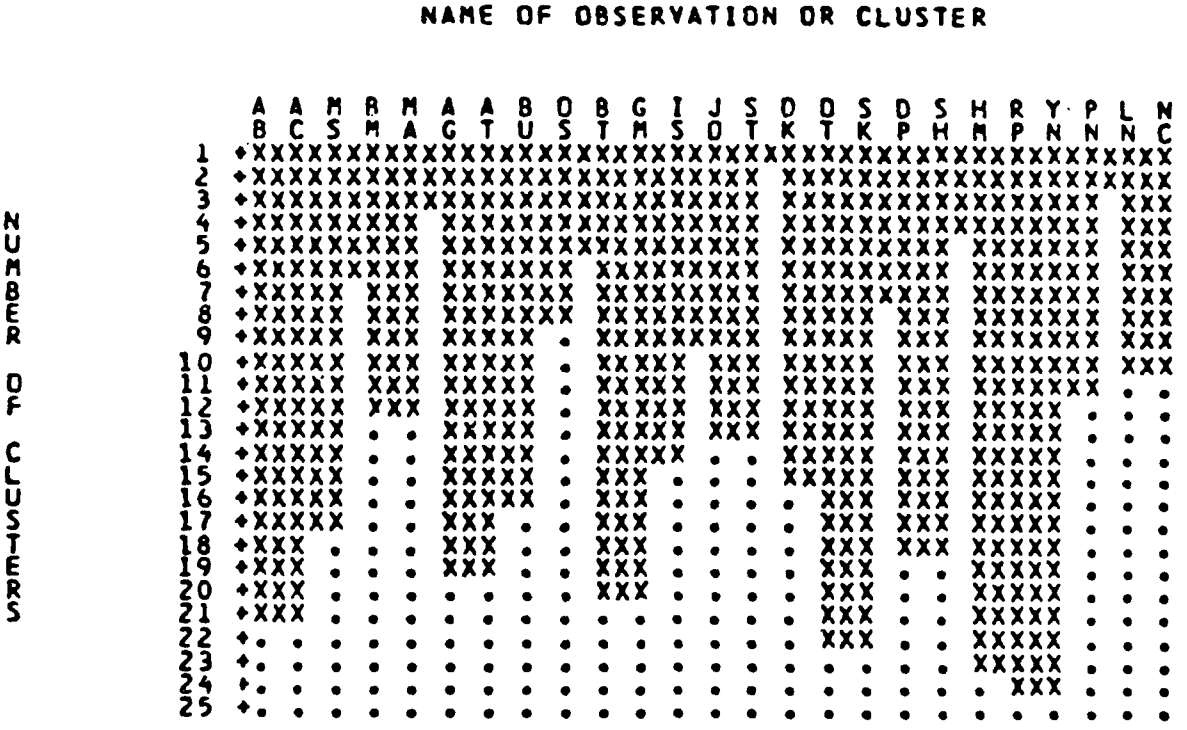

Figure 1. Cluster analysis of nonsocial scales.

The white vertical bars in Figure 1 show the break points among the various clusters. Thus, if one prefers the two-cluster solution, the break point comes between the Storekeeper and Disbursing Clerk ratings. There is no need in this research for us to pick a preferred number of clusters, so here we merely present the tree diagram and leave it to the reader to pick the level of clustering that is most interpretable from his or her viewpoint. Complete results for each analysis are presented in Appendix H.

The tree diagram for clustering of the social scales is presented in Figure 2. Note that the shape of the tree is somewhat different and also that a couple of ratings (NC and MA) remain as single-rating clusters until later stages of the clustering, as compared with Figure 1.

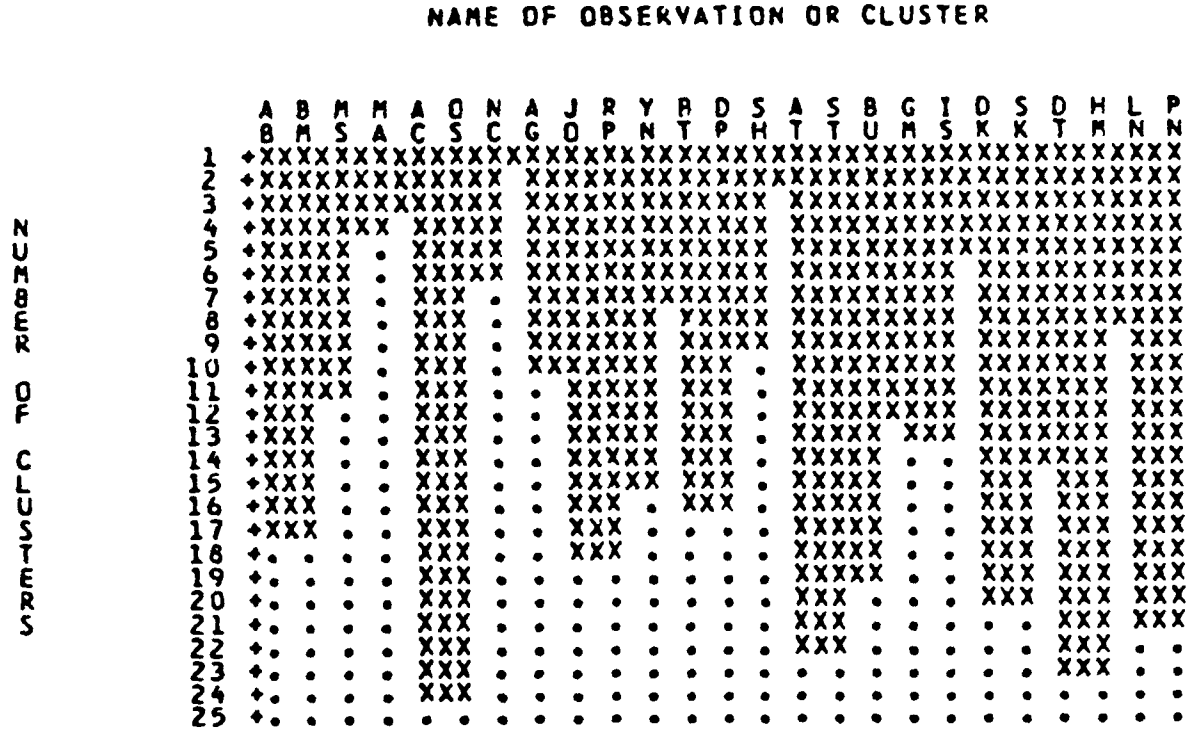

Figure 2. Cluster analysis of social scales.

With regard to the main objectives of this research, there is no need to trace particular changes in cluster membership, so tracing such changes is left to readers who are interested in making specific comparisons. Specific changes in cluster composition may be studied by selecting any particular hierarchical level of clustering for the two figures and comparing the ratings that compose the clusters. For the sake of illustration, consider step 8 in both analyses. In Figure 1, Aviation Boatswain's Mate, Air Traffic Controller, and Mess Management Specialist compose the first cluster. In the second analysis, at step 8, Air Traffic Controller is replaced by Boatswain's Mate, but the other two cluster members are the same. Other changes may be traced in a similar manner. Appendix H contains results that will be helpful to those interested in making specific comparisons (selecting the optimal number of clusters and examining distances within and between clusters).

Though a specific comparison of cluster composition is not needed to fulfill the objectives of this research, a general comparison is required. The most direct way of comparing the two analyses is given by the results shown in Table 8. Here the ratings are shown in alphabetical order, and the first two columns contain the similarity ranks from the two cluster analyses based on scales. Table 8 is based on the results shown in Figures 1 and 2. Working from the left in each figure, Aviation Boatswain's Mate held rank one in each analysis. Air Traffic Controller held rank two in the nonsocial scale analysis and rank five in the social scale analysis. Yeoman held rank 22 in the nonsocial scale analysis and rank 11 in the social scale analysis. The third column of Table 8 shows the absolute difference between the ranks. If the basis of analysis (nonsocial vs. social scales) made no difference, then these values would all be 0 or close to 0. There are, however, some large differences (greater than 11) and moderately large differences (7-10). The rank-order correlation for these results is .62, partway between 0.00 and 1.00. There is a good deal of overlap between the two clusterings, but the overlap is not sufficiently high to conclude that social interaction information makes no difference. Different clusters are obtained when different information is the basis of the clustering.

Table 8

Rank Order Correlations for Pairwise Similarities Based on Scales

	Rating	Nonsocial Scales	Social Scales	Absolute Rank Difference
AB	Aviation Boatswain's Mate	1	1	0
AC	Air Traffic Controller	2	5	3
AG	Aerographer's Mate	6	8	2
AT	Aviation Electronics Tech.	7	15	8
BM	Boatswain's Mate	4	2	2
BT	Boiler Tech.	12	12	2
BU	Builder	8	17	9
DK	Disbursing Clerk	15	20	5
DP	Data Processing Tech.	18	13	5
DT	Dental Tech.	16	22	6
GM	Gunner's Mate	11	18	7
HM	Hospital Corpsman	20	23	3
IS	Intelligence Specialist	12	19	7
JO	Journalist	13	9	4
LN	Legalman	24	24	0
MA	Master at Arms	5	4	1
MS	Mess Management Specialist	3	3	0
NC	Navy Counselor	25	7	18
OS	Operations Specialist	9	6	3
PN	Personnelman	23	24	2
RP	Religious Program Specialist	21	10	11
SH	Ships Serviceman	19	14	5
SK	Storekeeper	17	21	4
ST	Sonar Tech.	14	16	2
YN	Yeoman	22	11	11

Note. Coorelation of rank orders = .62.

We carried out a second pair of cluster analyses based on responses to items. The first of this pair was based on the 86 nonsocial items, and its results are shown in Figure 3. (See also pp. H-6-H-9.) The fourth cluster analysis was computed for the 129 social items and its results are shown in Figure 4. (See also pp. H-10-H-14.) Comparison of the two figures shows very different shapes, and this difference is further illustrated in the results of the rank-ordering of pairwise similarities, shown in Table 9. At the item level, the correlation between the rank orders of the similarities is .21, further showing that social interaction information makes a difference in cluster composition.

In the original research plan, we proposed to conduct a cluster analysis for 72 ratings and experience combinations (24 x 3). However, because the returns from apprentice to journeymen were smaller than anticipated (see Table 4), we found it necessary to combine these two groups to attain sufficient sample sizes to warrant computation of mean vectors. Thus, these two analyses were based on the pairwise similarities of 50 rank and level combinations (25 x 2). Because of their reliabilities, scales were used as the basis for these analyses.

The tree diagrams and other information from these cluster analyses are presented in Appendix H. Here, only three items will be mentioned. First, the correlation between the ranks of the pairwise similarities from the two analyses was .31. Second, in only one case (out of a possible 50) did the two mean vectors for a single rating appear in the same cluster by the 25 cluster stage. This occurred for Journalist in the nonsocial scale analysis (this also occurred for Legalman in the same analysis when Legalman '2' was added to a cluster defined by Legalman '3' and Navy Counselor '3' at the 23 cluster stage).[1] Given that the items in the questionnaire were selected to be generalizable across ratings, this finding is not surprising. Third, at the 2-cluster stage in the nonsocial scale analysis, there was no tendency for level to be associated with cluster membership, but in the analysis of the social scales, there was a strong relationship. Nineteen of the level '2' ratings occurred in cluster one together with no level '3' ratings. The remaining six level '2' ratings and all 25 level '3' ratings appeared in cluster two (chi-square = 29.88, $p < .01$).

The results of the three pairs of cluster analyses clearly show that different clusters are obtained when nonsocial and social information are used as the basis for determining cluster composition.

Additional Analyses

The NJAQ includes two additional sections. One is a grid, or matrix (p. 14 of NJAQ, Appendix A), in which respondents indicated the extent of contact they have with a variety of classes of people in several different settings, and the second is a list of 107 ratings (p. 4 of NJAQ, Appendix A) in which respondents indicated whether they work with members of each on a daily basis. Descriptive statistics for these two sections are reported in Appendices I and J, respectively.

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[1] Note. '2' and '3' are designators for the combined group of apprentice and journeyman respondents and master respondents respectively.

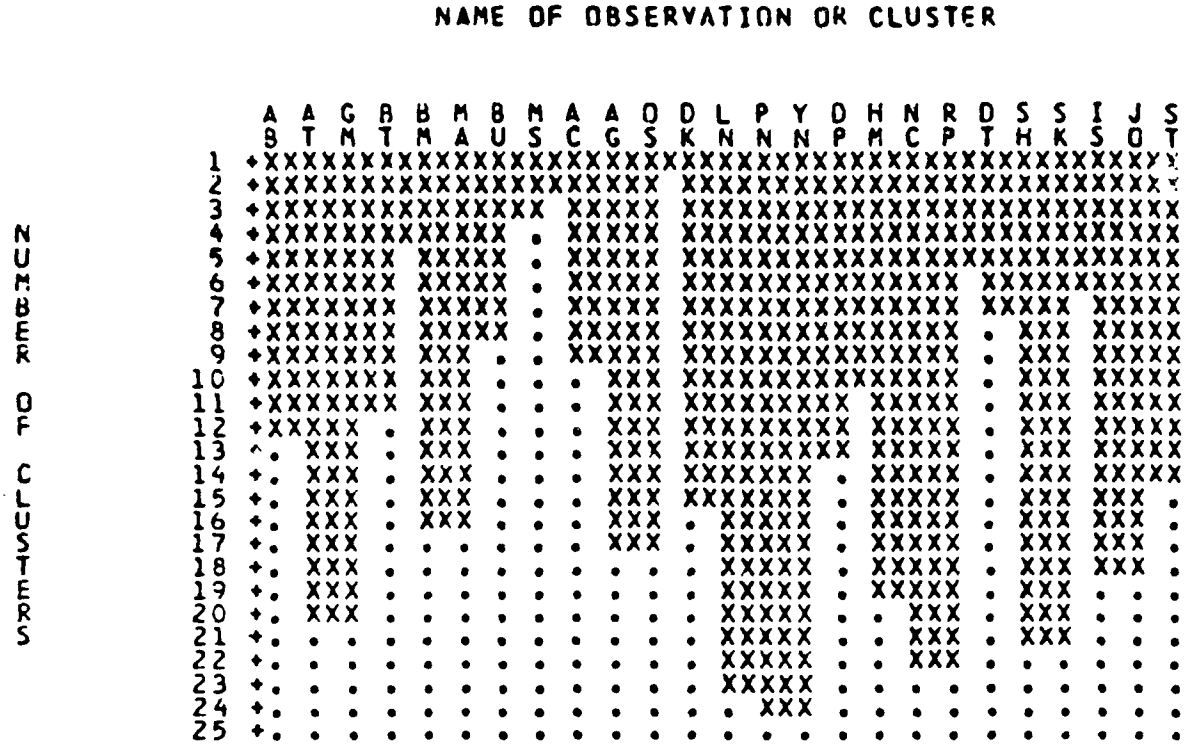

Figure 3. Cluster analysis of nonsocial items.

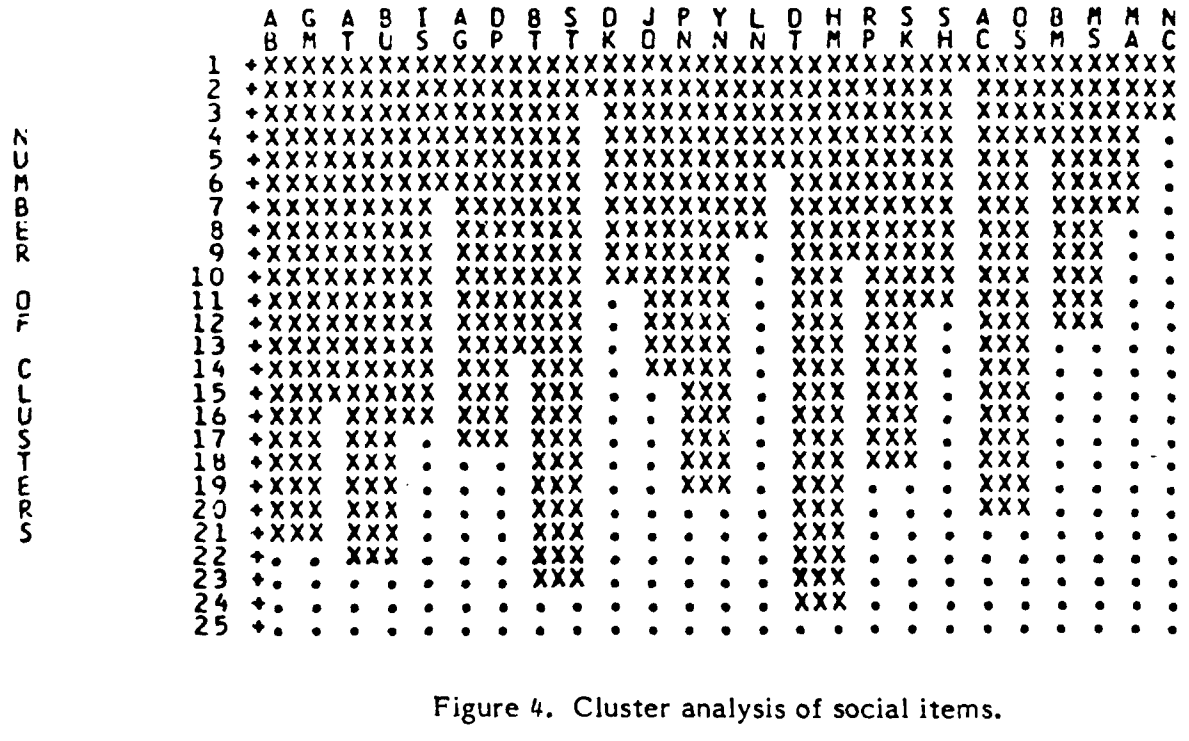

Figure 4. Cluster analysis of social items.

Table 9

Rank Order Correlations for Pairwise Similarities Based on Items

Rating		Nonsocial Scales	Social Scales	Absolute Rank Difference
AB	Aviation Boatswain's Mate	1	1	0
AC	Air Traffic Controller	9	20	11
AG	Aerographer's Mate	10	6	4
AT	Aviation Electronics Tech.	2	3	1
BM	Boatswain's Mate	5	22	17
BT	Boiler Tech.	4	8	4
BU	Builder	7	4	3
DK	Disbursing Clerk	12	10	2
DP	Data Processing Clerk	16	7	9
DT	Dental Tech.	20	15	5
GM	Gunner's Mate	3	2	1
HM	Hospital Corpsman	17	16	1
IS	Intelligence Specialist	13	5	18
JP	Journalist	14	11	13
LN	Legalman	13	14	1
MA	Master at Arms	6	24	18
MS	Mess Management Specialist	8	23	15
NC	Navy Counselor	18	25	7
OS	Operations Specialist	11	21	10
PN	Personnelman	14	12	2
RP	Religious Program Specialist	19	17	2
SH	Ships Serviceman	21	19	2
SK	Storekeeper	22	18	4
ST	Sonar Tech.	25	9	16
YN	Yeoman	15	13	2

Note. Correlation of rank orders = .21.

The contacts grid was analyzed by computing means for each cell (pp. I-1-I-8) and also by treating each row and each column of the matrix as a scale. Thus, there are 20 scores for the rows and 9 scores for the columns (pp. I-8-I-10).

To explore the meaning of these summary scores, a stepwise regression analysis was computed following the same procedures used to study the regression of grade on scales. A forward stepwise regression was computed with a criterion of $p < .15$ for inclusion of variables. Eleven variables met the selection criterion and at the 11th step the multiple correlation was .60 ($R^2 = .36$). The complete results are in Appendix I (pp. I-25-I-32). This 11-variable equation was cross-validated on the hold-out sample of 200, with a resulting correlation of .50. Inspection of the weights in the equation shows that people who spend more time on watch, at ceremonies, on the telephone, or working with nonrated personnel from outside their own rating tend to have lower grades. Those who spend more time working with Chief Petty Officers from other ratings, more time in formal

interchanges, more time in informal or unscheduled interchanges, and more time with flag officers, captains, civilian employees, and professionals and specialists have higher grades. These results show that further research with the contacts grid is worth pursuing. Such research will add to our knowledge of social interaction by showing how roles and situations influence job behavior.

Descriptive statistics for the ratings worked with on a daily basis section of the questionnaire are reported in Appendix J. Inspection of these results shows that with the exception of Personnelman and Yeoman, all of the means are quite low. A count was made of the number of ratings that sample participants claim to work with on a daily basis. The mean was 6.64, with a standard deviation of 9.64. Given 107 different ratings, these results suggest that the distribution of scores is extremely skewed. An attempt was made to group the ratings by using factor analysis, but because of the skewness of the distributions, the matrix was singular. Thus, no further analyses were made of this section of the questionnaire.

DISCUSSION

Review of Findings

Several conclusions were drawn in the Results section in conjunction with the presentation of the specific findings on which they were based. They are briefly summarized and discussed here.

The sample to which the inventory was mailed was randomly selected to represent 25 ratings and three experience and skill levels. However, returns of useable inventories were more probable from Navy personnel in higher ranks and land-based ratings. Thus, the findings of other analyses must be interpreted cautiously. They will serve to demonstrate key points about task analysis and social interaction, but their generalizability to all ratings and jobs within ratings will require further research.

Responses to the inventory were received from 594 enlisted men and women, and the quality of the data was high. Less than 3 percent of the responses were missing. The descriptive statistics for items were easily interpretable. The scales were highly reliable. These findings showed that social interaction characteristics could be defined and reliably measured using a format and procedures similar to those used by NODAC in its task analysis program.

Stepwise regression analyses were computed to investigate the extent to which social and nonsocial scales, and social and nonsocial items, could predict grade. For the social scales and the social and nonsocial items, the multiple correlations were high and held up very well in cross-validation. Only the nonsocial scales showed poor predictability. These analyses showed inventory responses validity differentiate among grades. The relationships are strong enough in three of the four cases to have practical significance.

Cluster analyses were conducted to determine whether the content basis, social or nonsocial information, would change the grouping of ratings into clusters. The results of three pairs of cluster analyses showed moderate to low convergence of similarity rank orders (rho = .62, .21, and .31), implying important differences in which ratings would be grouped together for the purpose of selection validation research.

Finally, we analyzed responses to the contact grid and the ratings worked with on a daily basis sections of the inventory. While the ratings worked with section did not yield useful information, the stepwise regression for the 29 contacts scales showed a moderate level of predictability and cross-validity in differentiating grades.

Research Objectives

This research was conducted to investigate two objectives, the first general and the second specific.

The larger significance of this research comes from its general objective--expanding inventory job analysis technology to more comprehensively account for social interaction. Our findings show clearly that social interaction characteristics of jobs can be measured reliably and that this can be done with an inventory format. Our findings serve as a demonstration of an approach that can be applied to the analysis and classification of military jobs.

The more specific objective was to determine whether different clusters would be obtained when the social interaction characteristics of jobs were the basis for clustering as compared with clustering based on traditional nonsocial task content.

The results for this objective are clear, though perhaps not surprising. Using different classes of content (social and nonsocial) leads to different, partially overlapping, (Sackett, Cornelius, & Carron, 1981) and, of course, the finding only reconfirms the old adage that "you only get out of an analysis what you put into it." While the finding of different cluster composition is not surprising, it is a finding we must not neglect, ignore, or take for granted. Its implications for test validation and criterion development are discussed below.

Thus, both objectives for this research program have been met. In the following paragraphs we discuss this project in general and some issues that are important in interpreting the findings properly. We discuss the implications of these findings for test validation and criterion development, and conclude with several recommendations.

Implications for Test Validation and Criterion Development

Congress has required that each of the military services validate its entrance examinations and enlistment standards against work performance, not just training and retention criteria. If separate job performance validation studies must be done for each of the 107 enlisted ratings in the Navy, this would be a prohibitively expensive and time consuming process. However, if it can be shown that ratings are substantially similar, validation research carried out for one might be generalizable to others. The development during the past decade of validity generalization and meta-analysis makes it feasible to use validation evidence gathered in one rating as a basis for justifying test use in other ratings.

A critical question, however, concerns the limits of generalizability. Proponents of meta-analysis have never claimed that a test which is valid for one occupation will be valid for all others (although a casual reading of their arguments creates this impression). Rather, they argue that for given predictor-test criterion-measure combinations, situational variance is negligible.

This research is complementary to the emergence of meta-analysis because it develops a technology that is useful in identifying differences among ratings and skill levels, differences that imply that different criterion constructs and criterion measures are relevant for assessing job performance.

It is always sound practice in personnel selection and classification to use relevant criterion measures. The results of the present study show clearly that ratings are clustered differently when the basis for clustering changes from nonsocial to social information, and also that major differences in social interaction characteristics are correlated with skill level. Use of the NJAQ, or an instrument based on it, would be appropriate in identifying social interaction dimensions of job performance, dimensions that might serve as criteria in validation research.

Review of Original Statement of Work

The statement of work in the request for proposals identified five activities to be conducted in this research. The first, a review of the research literature on social interaction characteristics, was completed and reported on separately by Hakel, Weil, and Hakel (1985). The second activity was to design a new task analysis procedure that would more comprehensively account for social interaction. That activity began with recommendations from the literature for the study of social tasks, and has been completed in this report with the development of the NJAQ for enlisted personnel. The third activity from the statement of work was to administer the questionnaire to a large sample, an activity that is reported on in the method and results sections of this report.

The fourth activity, a comparison of traditional and new task analysis procedures across three skill levels, is reported on in the results section in two ways. First, the stepwise regressions for predicting grade were computed as the most direct means of investigating the extent to which the two task analysis approaches can differentiate skill levels. Second, the cluster analysis of 50 Ranking x Group combinations investigated the results of the traditional and new approaches when tried out on a more complex classification task. As noted above, the two task analysis approaches yielded different approaches. Unfortunately, the response rate to the survey was relatively low for both Apprentices and Journeymen. Thus, this research was not as precise as would be desired with respect to skill-level differences, but it is highly informative, nevertheless.

An assumption was made in conducting this research that traditional task inventory items contain no social content. This assumption is not strictly true. NOTAP surveys and job analysis inventories used by the other services may contain items that include social transactions. For our research, however, in order to establish a clear and interpretable baseline, we excluded such items from our nonsocial category and identified that category with traditional military task analysis. Consequently, this design decision may have resulted in over-stating the differences between nonsocial and social content or between the traditional and the new approaches. It remains for further research to determine the incremental changes that might result from a more systematic inclusion of social interaction content in job analysis and job classification.

The fifth activity in the statement of work called for recommendation of predictors of individual job performance for each of the two sets of job families yielded by the cluster analyses. In response, the following suggestions are offered: First, with respect to nonsocial tasks, the 25 ratings differ greatly in work environment, tools and equipment, and physical requirements. Given the preliminary findings in the Army's Project A, which show that an interest inventory (AVOICE) significantly predicts several criteria, both the

AVOICE and the Minnesota Vocational Interest Inventory (MVII) should be investigated regarding work environment and tools and equipment. The MVII has its origin in Navy research and has a long research history. With respect to physical requirements, Campion (1983) reviews physical abilities testing. Performance tests of physical abilities might have application in some ratings.

With respect to predictors of performance on social dimensions of Navy jobs, further research is needed with respect to defining the social dimensionality of Navy jobs. While this research makes an important first step, it is still only a first step. There is little solid basis for choosing among the 35 scales, which make up the social domain in the NJAQ. Nevertheless, we suggest the use of interest inventories, biographical and life experience questionnaires (Owens & Schoenfeldt, 1979), personality inventories (Hogan, Hogan, & Busch, 1984) and other noncognitive predictors (see Hakel, 1986). These classes of predictors should be investigated for naval selection and placement.

Thus, this report completes the required five activities in the statement of work. It has been demonstrated on a pilot or exploratory basis that social interaction characteristics can be reliably measured in a task inventory and that cluster analysis results depend on the content basis of inventory. The results appear to be applicable and potentially useful to the Navy, given some additional development work from measurement and validity viewpoints.

RECOMMENDATIONS

1. Additional research and development work should be undertaken with the NJAQ to further define the social dimensionality of Navy enlisted ratings. Specifically, larger samples of Apprentices and Journeymen should be included in subsequent research, and an effort should be made to study not only positions and ratings, as was done here, but also the variety of jobs within each cell defined by rating and grade.

2. The NJAQ, when further developed, should be used in research that is intended to identify similarities in Navy ratings and jobs as a basis for grouping them for validation research purposes. The results of this project demonstrate that the social dimensions measured by the NJAQ are different from those generated by traditional task inventories and, therefore, that social information is likely to add additional relevant information to the problem of establishing rating clusters. The incremental changes produced by including social information need to be studied.

3. The NJAQ should be tested with enlisted men and women in additional ratings and it should also be extended to pilot usage in the officer ranks.

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APPENDIX A

NJAQ SCALES AND ITEMS

RJAQ SCALES AND ITEMS

Number	Task
Advise = Advising	
136	Advise others on job, career, or professional matters
137	Advise others on personal matters
138	Advise and assist individuals in resolving legal or procedural problems
139	Provide referral assistance
140	Help others fill out forms, write letters, or make requests
141	Provide sympathy or reassurance
142	Calm and pacify others
Alone = Works alone	
92	Administer paper and pencil and/or performance tests/examinations
94	Perform routine processing of people (for example, admission, discharge)
95	Handle cash transactions
96	Dispense supplies, equipment, medication, library books, etc.
97	Carry out routine health-care procedures
99	Assist personnel in obtaining information
100	Greet and direct visitors
101	Escort VIP's, visitors, etc.
103	Enforce orders, restrictions, security procedures, or safety precautions
107	Interview others for radio, television, or newspapers
108	Conduct interviews for counseling, retention, pre-retirement, etc.
109	Conduct debriefings
112	Use or read hand signals, flags, signal light guns, etc.
119	Listen to briefings on work goals, priorities, progress, etc.
126	Give feedback to superiors
128	Provide information to superiors on request
130	Make telephone calls for superiors
136	Advise others on job, career, or professional matters
137	Advise others on personal matters
138	Advise and assist individuals in resolving legal or procedural problems
139	Provide referral assistance
140	Help others fill out forms, write letters, or make requests
141	Provide sympathy or reassurance
143	Conduct formal training sessions
144	Provide informal, on-the-job training
145	Demonstrate techniques and procedures
159	Give directions, instructions, and orders
160	Conduct drills
162	Direct the loading or movements of personnel
164	Clarify goals and tasks for others
166	Assign tasks to people
173	Formally reward or commend others
176	Conduct meetings

177 Make presentations or give briefings
178 Give interviews for radio, television, or newspapers
179 Answer brief questions about technical or operational status
180 Report on dangerous, emergency, or crisis situations
182 Provide information on policies, procedures, and regulations
183 Transmit messages
184 Communicate policies to others
199 Monitor staff functions
202 Monitor compliance with security and safety procedures
204 Approve or reject requests/proposals

Both = Both sends and receives information

94 Perform routine processing of people (for example, admission, discharge)
95 Handle cash transactions
96 Dispense supplies, equipment, medication, library books, etc.
98 Provide first aid and treat non-serious illnesses
100 Greet and direct visitors
112 Use or read hand signals, flags, signal light guns, etc.
113 Communicate between ship/shore/air locations
114 Exchange information informally
115 Participate in formal "idea exchange" sessions
122 Discuss work situation, problems, or contingencies
130 Make telephone calls for superiors
131 Plan and organize programs or activities
132 Plan for the allocation and distribution of materials
135 Negotiate exchange of duties (SWAPS)
141 Provide sympathy or reassurance
146 Coordinate and schedule training programs or activities
147 Resolve complaints
152 Handle people who are hurt, ill, or in pain
156 Participate in search and rescue operations
157 Conduct search and rescue operations
158 Manage emergency situations or crises
168 Conduct formal "idea exchange" sessions with subordinates
176 Conduct meetings

Conflict = Conflict

147 Resolve complaints
148 Resolve conflicts about work assignments
149 Resolve conflicts about equipment or supplies
150 Resolve arguments between people

Crisis = Crisis

151 Handle people in dangerous or highly stressful situations
152 Handle people who are hurt, ill, or in pain
153 Handle people who are irrational, disturbed, or on drugs
154 Control others physically
155 Assess problems, emergencies, or crisis situations
156 Participate in search and rescue operations
157 Conduct search and rescue operations
158 Manage emergency situations or crises

Depend = Dependent—Can't proceed withouth others

92 Administer paper and pencil and/or performance tests/examinations
94 Perform routine processing of people (for example, admission, discharge)
100 Greet and direct visitors
107 Interview others for radio, television, or newspapers
109 Conduct debriefings
119 Listen to briefings on work goals, priorities, progress, etc.
120 Receive directions, instructions, and assignments
123 Receive individual or small group informal instruction or training
124 Attend training sessions
125 Attend meetings, conferences, or seminars not primarily concerned with training
128 Provide information to superiors on request
130 Make telephone calls for superiors
160 Conduct drills

Develop = Developing others

143 Conduct formal training sessions
144 Provide informal, on-the-job training
145 Demonstrate techniques and procedures
146 Coordinate and schedule training programs or activities

Devself = Developing self

123 Receive individual or small group informal instruction or training
124 Attend training sessions

Direct = Directing

159 Give directions, instructions, and orders
160 Conduct drills
161 Lead a special detail or work party
162 Direct the loading or movements of personnel
163 Establish goals

Equal = Peer or equal power position

113 Communicate between ship/shore/air locations
114 Exchange information informally
115 Participate in formal "idea exchange" sessions
135 Negotiate exchange of duties (SWAPS)

Gathinf = Gathering information

104 Conduct investigations of wrongdoing
105 Investigate accidents
106 Gather information on materials for use in making decisions
107 Interview others for radio, television, or newspapers
108 Conduct interviews for counseling, retention, pre-retirement, etc.
109 Conduct debriefings
110 Obtain information and assistance for resolving legal and procedural problems

111 Seek advice on career opportunities
125 Attend meetings, conferences, or seminars not primarily concerned with training

Giveinf = Giving information

176 Conduct meetings
177 Make presentations or give briefings
178 Give interviews for radio, television, or newspapers
179 Answer brief questions about technical or operational status
180 Report on dangerous, emergency, or crisis situations
181 Interpret and report on information from status and/or plotting boards
182 Provide information on policies, procedures, and regulations
183 Transmit messages
184 Communicate policies to others

Handrout = Handling routine situations

89 Register equipment or supplies
90 Order needed equipment and supplies
91 Complete forms
92 Administer paper and pencil and/or performance tests/examinations
93 Carry out medical, biological, or chemical test procedures
94 Perform routine processing of people (for example, admission, discharge)
95 Handle cash transactions

Indep = Independent--proceeds on own volition

159 Give directions, instructions, and orders
163 Establish goals
164 Clarify goals and tasks for others
166 Assign tasks to people
167 Brief subordinates on work goals, priorities, progress, etc.
169 Provide feedback to subordinates
170 Evaluate the performance of subordinates
177 Make presentations or give briefings
197 Evaluate programs and recommend improvements in them
198 Monitor combat readiness
199 Monitor staff functions
200 Monitor expenses
201 Monitor work performance and standards
202 Monitor compliance with security and safety procedures

Inferior = Inferior power position

119 Listen to briefings on work goals, priorities, progress, etc.
120 Receive directions, instructions, and assignments
123 Receive individual or small group informal instruction or training
124 Attend training sessions
126 Give feedback to superiors
127 Account to others for decisions and actions
128 Provide information to superiors on request
130 Make telephone calls for superiors

179 Answer brief questions about technical or operational status

Influenz = Influencing

112 Use or read hand signals, flags, signal light guns, etc.
113 Communicate between ship/shore/air locations
114 Exchange information informally
115 Participate in formal "idea exchange" sessions
116 Contribute to discussions in meetings
117 Defend ideas, views, or positions

Inform = Informing

174 Encourage and inspire efforts of others
175 Encourage re-enlistment
191 Maintain contact with appropriate superiors to ensure rapid handling of matters relating to your duty assignment
192 Persuade people of higher rank toward some action, opinion, or position
193 Maintain contact with appropriate peers to ensure rapid handling of matters relating to your duty assignment
194 Persuade people of your rank toward some action, opinion, or position
195 Maintain contact with appropriate people in lower ranks to ensure rapid handling of matters relating to your duty assignment
196 Persuade people of lower ranks toward some action, opinion, or position

Initiat = Initiates activity or task

92 Administer paper and pencil and/or performance tests/examinations
102 Apprehend suspects and conduct personal searches
104 Conduct investigations of wrongdoing
107 Interview others for radio, television, or newspapers
108 Conduct interviews for counseling, retention, pre-retirement, etc.
109 Conduct debriefings
110 Obtain information and assistance for resolving legal and procedural problems
130 Make telephone calls for superiors
131 Plan and organize programs or activities
132 Plan for the allocation and distribution of materials
134 Coordinate and schedule work activities
143 Conduct formal training sessions
144 Provide informal, on-the-job training
145 Demonstrate techniques and procedures
159 Give directions, instructions, and orders
160 Conduct drills
162 Direct the loading or movements of personnel
163 Establish goals
166 Assign tasks to people
167 Brief subordinates on work goals, priorities, progress, etc.
168 Conduct formal "idea exchange" sessions with subordinates
169 Provide feedback to subordinates
170 Evaluate the performance of subordinates
173 Formally reward or commend others

174 Encourage and inspire efforts of others
175 Encourage re-enlistment
176 Conduct meetings
192 Persuade people of higher rank toward some action, opinion, or position
194 Persuade people of your rank toward some action, opinion, or position
197 Evaluate programs and recommend improvements in them
198 Monitor combat readiness

Interdep = Interdependent—interacts with others

95 Handle cash transactions
96 Dispense supplies, equipment, medication, library books, etc.
97 Carry out routine health-care procedures
98 Provide first aid and treat non-serious illnesses
99 Assist personnel in obtaining information
101 Escort VIP's, visitors, etc.
102 Apprehend suspects and conduct personal searches
104 Conduct investigations of wrongdoing
106 Gather information on materials for use in making decisions
108 Conduct interviews for counseling, retention, pre-retirement, etc.
110 Obtain information and assistance for resolving legal and procedural problems
112 Use or read hand signals, flags, signal light guns, etc.
113 Communicate between ship/shore/air locations
114 Exchange information informally
115 Participate in formal "idea exchange" sessions
122 Discuss work situation, problems, or contingencies
126 Give feedback to superiors
127 Account to others for decisions and actions
131 Plan and organize programs or activities
132 Plan for the allocation and distribution of materials
135 Negotiate exchange of duties (SWAPS)
136 Advise others on job, career, or professional matters
137 Advise others on personal matters
138 Advise and assist individuals in resolving legal or procedural problems
139 Provide referral assistance
140 Help others fill out forms, write letters, or make requests
141 Provide sympathy or reassurance
144 Provide informal, on-the-job training
145 Demonstrate techniques and procedures
146 Coordinate and schedule training programs or activities
147 Resolve complaints
151 Handle people in dangerous or highly stressful situations
152 Handle people who are hurt, ill, or in pain
153 Handle people who are irrational, disturbed, or on drugs
156 Participate in search and rescue operations
157 Conduct search and rescue operations
162 Direct the loading or movements of personnel
168 Conduct formal "idea exchange" sessions with subordinates
173 Formally reward or commend others
176 Conduct meetings
178 Give interviews for radio, television, or newspapers

179 Answer brief questions about technical or operational status
180 Report on dangerous, emergency, or crisis situations
182 Provide information on policies, procedures, and regulations
183 Transmit messages
184 Communicate policies to others
192 Persuade people of higher rank toward some action, opinion, or position
194 Persuade people of your rank toward some action, opinion, or position
204 Approve or reject requests/proposals

Misctask = Miscellaneous tasks

19 Use written materials (for example, tech manuals, publications, and directives)
20 Use numerical materials (for example, graphs, tables of numbers)
21 Use pictures or diagrams (for example, blueprints, maps)
22 Use pattern devices (for example, templates, stencils, radio codes)
23 Use visual displays (for example, gauges, radarscope)
24 Use physical measurement devices (for example, rulers, pressure gauges)
25 Use cameras, projectors, etc.
26 Use tools that handle things (for example, tongs, ladles)
27 Use tools that perform precise operations
28 Use tools with long handles (for example, brooms, shovels)
29 Use hand-held powered tools
30 Use remote-controlled equipment
31 Use stationary machines or equipment that you control
32 Use mooring or towing lines
33 Use machines that have fixed or variable settings (for example, TV selector switch, room thermostat, oven)
34 Use keyboard machines (for example, adding machines, typewriters, computer terminals, word processors)
35 Operate heavy equipment (for example, car, truck, fork lift, steam roller, earth mover)
54 Take actions to assure the safety of Navy personnel or the general public
71 Inspect products, objects, materials, or equipment
72 Code and decode messages (for example, Morse code, computer languages)
73 Make log entries
74 Maintain records
75 Arrange information into a meaningful order
76 Add, subtract, multiply, and divide numbers
77 Work with percentages, fractions, or decimals
78 Use algebraic, geometric, trigonometric, or statistical methods
79 Monitor mechanical/electronic indicators to identify events that happen rarely but are important (for example, malfunctions)
80 Monitor frequently changing mechanical/electronic indicators used for control of operations, traffic, etc.
81 Perform quality assurance inspections on equipment
82 Operate mechanical, electrical, or electronic equipment
83 Maintain electrical, electronic, or mechanical equipment
84 Repair electronic, mechanical, or electrical equipment
85 Move heavy (50 to 100 lbs.) or very heavy (over 100 lbs) equipment

and supplies
86 Arrange or pack objects or materials
88 Pick up or deliver supplies or materials
129 Write technical or status reports
171 Write performance reports on personnel

Monitor = Monitoring

197 Evaluate programs and recommend improvements in them
198 Monitor combat readiness
199 Monitor staff functions
200 Monitor expenses
201 Monitor work performance and standards
202 Monitor compliance with security and safety procedures
203 Listen to complaints and requests
204 Approve or reject requests/proposals

Moreoth = Interact with group

115 Participate in formal "idea exchange" sessions
119 Listen to briefings on work goals, priorities, progress, etc.
124 Attend training sessions
125 Attend meetings, conferences, or seminars not primarily concerned with training
143 Conduct formal training sessions
157 Conduct search and rescue operations
160 Conduct drills
176 Conduct meetings
177 Make presentations or give briefings
182 Provide information on policies, procedures, and regulations

Oneoth = Interact with one other

88 Pick up or deliver supplies or materials
93 Carry out medical, biological, or chemical test procedures
94 Perform routine processing of people (for example, admission, discharge)
95 Handle cash transactions
96 Dispense supplies, equipment, medication, library books, etc.
97 Carry out routine health-care procedures
98 Provide first aid and treat non-serious illnesses
100 Greet and direct visitors
101 Escort VIP's, visitors, etc.
102 Apprehend suspects and conduct personal searches
107 Interview others for radio, television, or newspapers
108 Conduct interviews for counseling, retention, pre-retirement, etc.
109 Conduct debriefings
112 Use or read hand signals, flags, signal light guns, etc.
114 Exchange information informally
120 Receive directions, instructions, and assignments
126 Give feedback to superiors
128 Provide information to superiors on request
130 Make telephone calls for superiors
135 Negotiate exchange of duties (SWAPS)
139 Provide referral assistance

140 Help others fill out forms, write letters, or make requests
141 Provide sympathy or reassurance
144 Provide informal, on-the-job training
153 Handle people who are irrational, disturbed, or on drugs
169 Provide feedback to subordinates
170 Evaluate the performance of subordinates
175 Encourage re-enlistment
178 Give interviews for radio, television, or newspapers
183 Transmit messages

Physreq = Physical requirements

36 Perform tasks that require highly skilled body coordination
37 Work at tasks that require sitting for long periods
38 Work at tasks that require standing for long periods
39 Work in a squatting position
40 Work in a stooping position
41 Work at tasks that require climbing
42 Perform tasks that require steady hands and arms
43 Perform tasks that require you to be calm and controlled
44 Coordinate hand and/or foot movement with what you hear
45 Notice different patterns of sound (for example, Morse code, engines not running right)
46 Notice differences or changes in sound through loudness, pitch, or tone quality
47 Use touch
48 Use finger movement (for example, drawing instruments, keyboards)
49 Use hands directly to form or change materials
50 Sense body position and balance (for example, walking on I-beams, walking on deck)
51 Use odor (applied to any odor you need to smell to do your job)
52 Use taste
53 Tell the difference in colors
62 Judge distances
63 Judge speed of moving objects
64 Judge speed of some process (for example, cooking time, developing pictures)
65 Judge size or weight of objects without direct measurement
66 Judge peoples' abilities and personal qualities
67 Observe extreme detail of objects (for example, reading small print, setting ignition points)
68 Observe moderate details of objects (for example, hammering nails, reading gauges)
69 Observe features of nature (for example, cloud formations, stars, ocean currents)
70 Observe man-made features (for example, bridges, dams, docks)

Planorg = Planning and organizing

131 Plan and organize programs or activities
132 Plan for the allocation and distribution of materials
133 Plan for the allocation of personnel to various programs
134 Coordinate and schedule work activities
135 Negotiate exchange of duties (SWAPS)
136 Assign tasks to people

Receive = Receives information

102 Apprehend suspects and conduct personal searches
104 Conduct investigations of wrongdoing
106 Gather information on materials for use in making decisions
107 Interview others for radio, television, or newspapers
108 Conduct interviews for counseling, retention, pre-retirement, etc.
109 Conduct debriefings
110 Obtain information and assistance for resolving legal and procedural problems
119 Listen to briefings on work goals, priorities, progress, etc.
120 Receive directions, instructions, and assignments
123 Receive individual or small group informal instruction or training
124 Attend training sessions
125 Attend meetings, conferences, or seminars not primarily concerned with training
135 Assess problems, emergencies, or crisis situations
197 Evaluate programs and recommend improvements in them
198 Monitor combat readiness
199 Monitor staff functions
200 Monitor expenses
201 Monitor work performance and standards
202 Monitor compliance with security and safety procedures

Recipnt = Recipient of others' actions

99 Assist personnel in obtaining information
115 Participate in formal "idea exchange" sessions
119 Listen to briefings on work goals, priorities, progress, etc.
120 Receive directions, instructions, and assignments
123 Receive individual or small group informal instruction or training
124 Attend training sessions
125 Attend meetings, conferences, or seminars not primarily concerned with training
127 Account to others for decisions and actions
128 Provide information to superiors on request
138 Advise and assist individuals in resolving legal or procedural problems
139 Provide referral assistance
140 Help others fill out forms, write letters, or make requests
141 Provide sympathy or reassurance
147 Resolve complaints
178 Give interviews for radio, television, or newspapers
183 Transmit messages

Rescoop = Responding and cooperating

87 Stow equipment or supplies as directed
118 Listen in order to understand others' points of view
119 Listen to briefings on work goals, priorities, progress, etc.
120 Receive directions, instructions, and assignments
122 Discuss work situation, problems, or contingencies
126 Give feedback to superiors
127 Account to others for decisions and actions

128 Provide information to superiors on request
130 Make telephone calls for superiors
212 Stand inspections
215 Participate in working parties

Sanction = Sanctioning

172 Give 'pats on the back' and other informal rewards
173 Formally reward or commend others

Security = Security

101 Escort VIP's, visitors, etc.
102 Apprehend suspects and conduct personal searches
103 Enforce orders, restrictions, security procedures, or safety precautions

Send = Sends information

99 Assist personnel in obtaining information
101 Escort VIP's, visitors, etc.
103 Enforce orders, restrictions, security procedures, or safety precautions
126 Give feedback to superiors
127 Account to others for decisions and actions
128 Provide information to superiors on request
134 Coordinate and schedule work activities
136 Advise others on job, career, or professional matters
137 Advise others on personal matters
138 Advise and assist individuals in resolving legal or procedural problems
139 Provide referral assistance
140 Help others fill out forms, write letters, or make requests
143 Conduct formal training sessions
144 Provide informal, on-the-job training
145 Demonstrate techniques and procedures
159 Give directions, instructions, and orders
160 Conduct drills
162 Direct the loading or movements of personnel
163 Establish goals
164 Clarify goals and tasks for others
166 Assign tasks to people
167 Brief subordinates on work goals, priorities, progress, etc.
169 Provide feedback to subordinates
170 Evaluate the performance of subordinates
173 Formally reward or commend others
174 Encourage and inspire efforts of others
175 Encourage re-enlistment
177 Make presentations or give briefings
178 Give interviews for radio, television, or newspapers
179 Answer brief questions about technical or operational status
180 Report on dangerous, emergency, or crisis situations
182 Provide information on policies, procedures, and regulations
183 Transmit messages
184 Communicate policies to others

192 Persuade people of higher rank toward some action, opinion, or position
194 Persuade people of your rank toward some action, opinion, or position

Servoth = Serving others

96 Dispense supplies, equipment, medication, library books, etc.
97 Carry out routine health-care procedures
98 Provide first aid and treat non-serious illnesses
99 Assist personnel in obtaining information
100 Greet and direct visitors

Someteam = Teamwork helpful but not essential

93 Carry out medical, biological, or chemical test procedures
98 Provide first aid and treat non-serious illnesses
102 Apprehend suspects and conduct personal searches
104 Conduct investigations of wrongdoing
114 Exchange information informally
115 Participate in formal "idea exchange" sessions
122 Discuss work situation, problems, or contingencies
134 Coordinate and schedule work activities
146 Coordinate and schedule training programs or activities
151 Handle people in dangerous or highly stressful situations
152 Handle people who are hurt, ill, or in pain
153 Handle people who are irrational, disturbed, or on drugs
158 Manage emergency situations or crises
163 Establish goals
167 Brief subordinates on work goals, priorities, progress, etc.
168 Conduct formal "idea exchange" sessions with subordinates

Superior - Superior power position

92 Administer paper and pencil and/or performance tests/examinations
98 Provide first aid and treat non-serious illnesses
101 Escort VIP's, visitors, etc.
102 Apprehend suspects and conduct personal searches
103 Enforce orders, restrictions, security procedures, or safety precautions
104 Conduct investigations of wrongdoing
108 Conduct interviews for counseling, retention, pre-retirement, etc.
109 Conduct debriefings
131 Plan and organize programs or activities
132 Plan for the allocation and distribution of materials
133 Plan for the allocation of personnel to various programs
134 Coordinate and schedule work activities
143 Conduct formal training sessions
144 Provide informal, on-the-job training
146 Coordinate and schedule training programs or activities
147 Resolve complaints
151 Handle people in dangerous or highly stressful situations
152 Handle people who are hurt, ill, or in pain
153 Handle people who are irrational, disturbed, or on drugs
155 Assess problems, emergencies, or crisis situations

157 Conduct search and rescue operations
158 Manage emergency situations or crises
159 Give directions, instructions, and orders
160 Conduct drills
162 Direct the loading or movements of personnel
163 Establish goals
164 Clarify goals and tasks for others
166 Assign tasks to people
167 Brief subordinates on work goals, priorities, progress, etc.
168 Conduct formal "idea exchange" sessions with subordinates
169 Provide feedback to subordinates
170 Evaluate the performance of subordinates
173 Formally reward or commend others
174 Encourage and inspire efforts of others
175 Encourage re-enlistment
176 Conduct meetings
197 Evaluate programs and recommend improvements in them
198 Monitor combat readiness
199 Monitor staff functions
200 Monitor expenses
201 Monitor work performance and standards
202 Monitor compliance with security and safety procedures
204 Approve or reject requests/proposals

Superviz = Supervising

164 Clarify goals and tasks for others
165 Assign priorities to tasks
167 Brief subordinates on work goals, priorities, progress, etc.
168 Conduct formal "idea exchange" sessions with subordinates
169 Provide feedback to subordinates
170 Evaluate the performance of subordinates

Team = Teamwork required

125 Attend meetings, conferences, or seminars not primarily concerned with training
156 Participate in search and rescue operations

Tooleqip = Tools and equipment

19 Use written materials (for example, tech manuals, publications, and directives)
20 Use numerical materials (for example, graphs, tables of numbers)
21 Use pictures or diagrams (for example, blueprints, maps)
22 Use pattern devices (for example, templates, stencils, radio codes)
23 Use visual displays (for example, gauges, radarscope)
24 Use physical measurement devices (for example, rulers, pressure gauges)
25 Use cameras, projectors, etc.
26 Use tools that handle things (for example, tongs, ladles)
27 Use tools that perform precise operations
28 Use tools with long handles (for example, brooms, shovels)
29 Use hand-held powered tools
30 Use remote-controlled equipment

31 Use stationary machines or equipment that you control
32 Use mooring or towing lines
33 Use machines that have fixed or variable settings (for example, TV selector switch, room thermostat, oven)
34 Use keyboard machines (for example, adding machines, typewriters, computer terminals, word processors)
35 Operate heavy equipment (for example, car, truck, fork lift, steam roller, earth mover)

Twooth = Interact with two others

122 Discuss work situation, problems, or contingencies
123 Receive individual or small group informal instruction or training
127 Account to others for decisions and actions
147 Resolve complaints
166 Assign tasks to people
167 Brief subordinates on work goals, priorities, progress, etc.
168 Conduct formal "idea exchange" sessions with subordinates

Workenv = Work environment

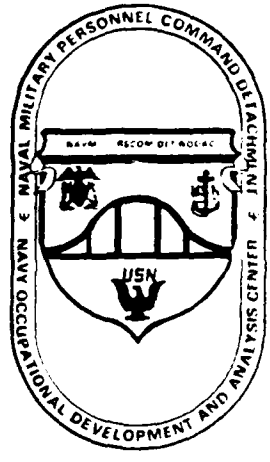
1 Work outdoors
2 Work in an enclosed area that is hot
3 Work in an enclosed area that is cold
4 Work in polluted air (for example, dust, toxic fumes)
5 Work where respiration equipment is required (for example, face mask)
6 Work in presence of hazardous materials/chemicals (for example, mercury, acid, asbestos)
7 Work in spaces requiring sterile or clean conditions (for example, hospital, kitchen)
8 Work in areas subject to vibration
9 Work under extreme lighting conditions (for example, extreme darkness, extreme brightness/glare)
10 Work where you easily become dirty
11 Work in a cramped or uncomfortable space
12 Work in a quiet area
13 Work in an area of moderate noise (for example, machinery operating)
14 Work in an area of loud noise (for example, jet blast)
15 Work where ear protection is required
55 Work under distractions
56 Perform under time pressure
57 Perform in dangerous situations
58 Work in emergency situations
59 Work independently, with little supervision
60 Work on a schedule that allows some freedom as long the job gets done
61 Follow certain set procedures on your job (like following a check-out list to inspect equipment)

Xitem = Noncategorized items

16 Work alone
17 Work with one other person

18	Work as part of a team or a group
121	Listen to technical or complicated information
185	Arrange competitions between units
186	Trade 'chits' to get a job done
187	Work out deals for your watch crew or division to get special perks (for example, better "mid-rats")
188	Arrange for your crew's requests for leave, transfer, or other administrative items to be processed rapidly
189	Work out deals to make work easier or faster
190	Work out deals to make living or working conditions better
205	Stand operational, security, or other watches
206	Act as phone talker
207	Act as helmsman/planesman
208	Participate in repair party
209	Participate in first aid team
210	Participate in fire party
211	Participate in ammunition loading team
213	Participate in color guard
214	Participate in competitions between units

NAVY
JOB ANALYSIS QUESTIONNAIRE
FOR ENLISTED PERSONNEL



Navy Personnel
Research and Development
Center

NPRDC

Navy Occupational
Development and Analysis
Center

NODAC

Applied Research Group
9660 Hillcroft Suite 337
Houston, TX 77096

Authority to request this information is derived from 5 USC 301, Departmental Regulations. The purpose of this information is to determine what specific tasks are being performed by job incumbents and for analysis and comparison between groupings of individuals within a rating. The data may be used in updating training school curricula and advancement examinations, revising occupational standards and rate training manuals, developing training requirements and NECs. Completion of this information is mandatory.

SURVEY AUTHORIZATION

Authority to conduct this survey has been granted by CNO (OP01). This survey is exempt from Survey Report Symbol requirements of OPNAVINST 5300.8A.

PLEASE READ THIS PAGE BEFORE STARTING TO COMPLETE THE QUESTIONNAIRE.

INSTRUCTIONS

MARKING DIRECTIONS

Your responses will be read by an optical mark reader. Your careful observance of these few simple rules will be most appreciated.

- Use only a #2 pencil.
- Make heavy black marks that fill the circle.
- Erase cleanly any answer you wish to change.
- Make no stray markings of any kind.
- Where write-in responses are necessary, please confine your writing to the limits of the lines or boxes provided.

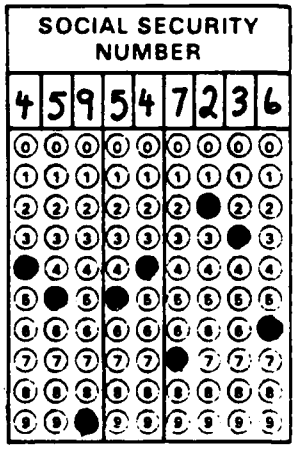
EXAMPLES: Correct ○●○○ Incorrect ✓✗⊙●

Each section of the booklet has a specialized response format. Read the directions for each section carefully and make your marks as indicated.

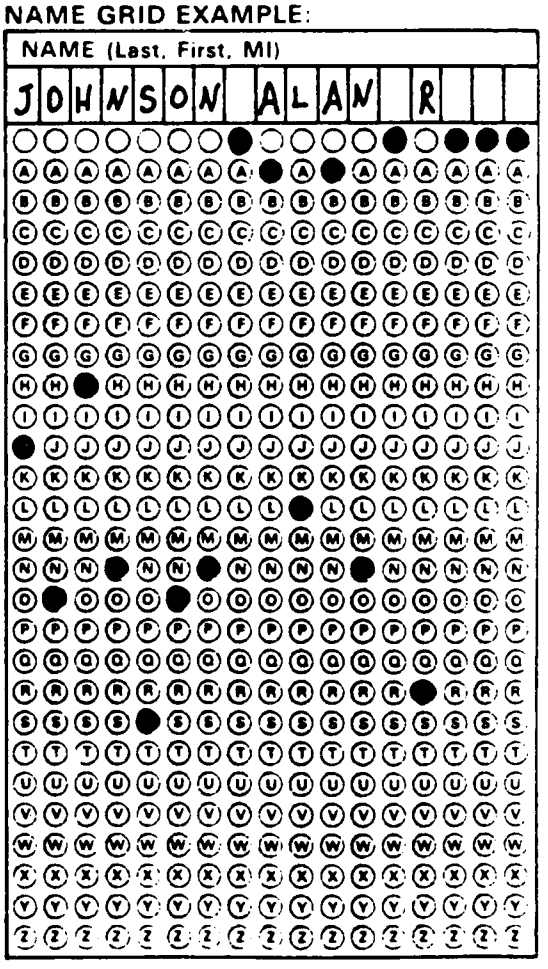
For completing grids, please:

1. Write the letters or numbers in the boxes provided.
2. Mark the MATCHING CIRCLE BELOW EACH BOX. For unused boxes, fill in the blank circles.

EXAMPLE: Write your Social Security number in the box provided and fill in the matching circle under each number.



NAME GRID EXAMPLE:

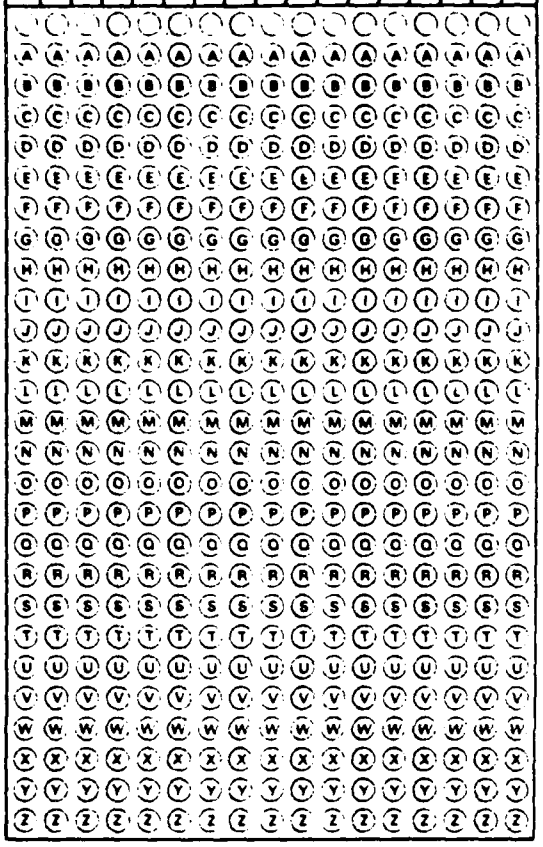


1. Write your name (Last, First, Middle Initial) and your Social Security number in the boxes provided and fill in the matching circle under each letter or number.

2. What rating were you trained in when you entered the Navy and attended 'A' school?

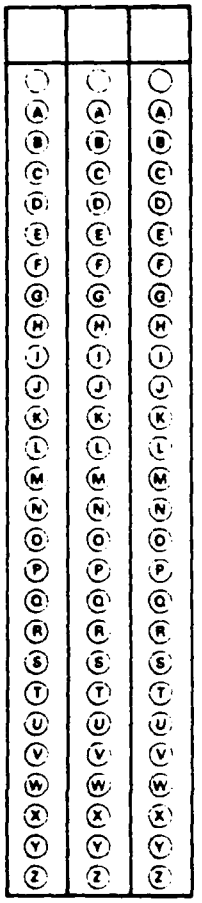
3. What is your present rating?

NAME (Last, First, MI)

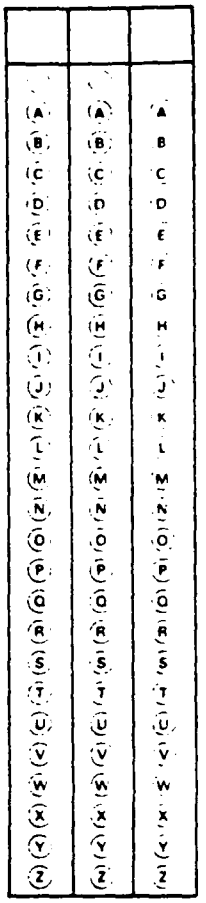


SEE EXAMPLE BEFORE COMPLETING

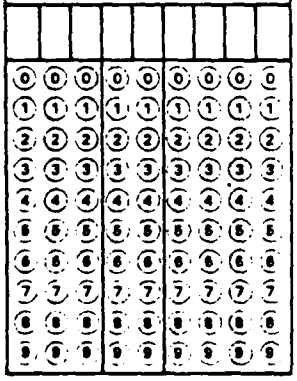
RATING TRAINED IN



PRESENT RATING



SOCIAL SECURITY NUMBER



4. What is your present pay grade?

PAY GRADE

AG ◯ Aerographer's Mate
AC ◯ Air Traffic Controller
PR ◯ Aircrew Survival Equipmentman
AN ◯ Airman
AW ◯ Aviation Antisubmarine Warfare Operator
AWA ◯ Aviation Antisubmarine Warfare Operator (Acoustic)
AWN ◯ Aviation Antisubmarine Warfare Operator (Non-Acoustic)
AWH ◯ Aviation Antisubmarine Warfare Operator (Helicopter)
AX ◯ Aviation Antisubmarine Warfare Technician
AB ◯ Aviation Boatswain's Mate
ABH ◯ Aviation Boatswain's Mate (Aircraft Handling)
ABF ◯ Aviation Boatswain's Mate (Fuels)
ABE ◯ Aviation Boatswain's Mate (Launching & Recovery Equipment)
AE ◯ Aviation Electrician's Mate
AT ◯ Aviation Electronics Technician
AQ ◯ Aviation Fire Control Technician
AD ◯ Aviation Machinist's Mate
AZ ◯ Aviation Maintenance Administrationman
AO ◯ Aviation Ordnanceman
AK ◯ Aviation Storekeeper
AM ◯ Aviation Structural Mechanic
AMH ◯ Aviation Structural Mechanic (Hydraulics)
AME ◯ Aviation Structural Mechanic (Safety Equipment)
AMS ◯ Aviation Structural Mechanic (Structures)
AS ◯ Aviation Support Equipment Technician
ASE ◯ Aviation Support Equipment Technician (Electrical)
ASM ◯ Aviation Support Equipment Technician (Mechanical)
BM ◯ Boatswain's Mate
BT ◯ Boiler Technician
BU ◯ Builder
CM ◯ Construction Mechanic
CE ◯ Construction Electrician
CN ◯ Constructionman
CTA ◯ Cryptologic Technician (Administrative)
CTR ◯ Cryptologic Technician (Collection)
CTO ◯ Cryptologic Technician (Communications)
CTI ◯ Cryptologic Technician (Interpretive)
CTM ◯ Cryptologic Technician (Maintenance)
CTT ◯ Cryptologic Technician (Technical)
DP ◯ Data Processing Technician
DS ◯ Data Systems Technician
DT ◯ Dental Technician
DN ◯ Dentalman
DK ◯ Disbursing Clerk
EM ◯ Electrician's Mate
ET ◯ Electronics Technician
EW ◯ Electronics Warfare Technician
EA ◯ Engineering Aid
EN ◯ Engineman
EO ◯ Equipment Operator
FT ◯ Fire Control Technician
FTB ◯ Fire Control Technician (Ballistic Missile Fire Control)
FTG ◯ Fire Control Technician (Gun Fire Control)
FC ◯ Fire Controlman
FN ◯ Fireman
GS ◯ Gas Turbine Systems Technician
GSE ◯ Gas Turbine Systems Technician (Electrical)
GSM ◯ Gas Turbine Systems Technician (Mechanical)
GM ◯ Gunner's Mate
GMG ◯ Gunner's Mate (Guns)
GMM ◯ Gunner's Mate (Missiles)
GMT ◯ Gunner's Mate (Technician)
HM ◯ Hospital Corpsman
HN ◯ Hospitalman
HT ◯ Hull Maintenance Technician
DM ◯ Illustrator Draftsman
IM ◯ Instrumentman
IS ◯ Intelligence Specialist
IC ◯ Interior Communications Electrician
JO ◯ Journalist
LN ◯ Legalman
LI ◯ Lithographer
MR ◯ Machinery Repairman
MM ◯ Machinist's Mate
MA ◯ Master-at-Arms
MS ◯ Mess Management Specialist
MN ◯ Mineman
MT ◯ Missile Technician
ML ◯ Molder
MU ◯ Musician
NC ◯ Navy Counselor
OTA ◯ Ocean Systems Technician Analyst
OTM ◯ Ocean Systems Technician Maintainer
OS ◯ Operations Specialist
OM ◯ Opticalman
PM ◯ Patternmaker
PN ◯ Personnelman
PH ◯ Photographer's Mate

PLEASE DO NOT MARK IN THIS AREA

PC ◯ Postal Clerk
QM ◯ Quartermaster
RM ◯ Radioman
RP ◯ Religious Program Specialist
SN ◯ Seaman
SH ◯ Ship's Serviceman
SM ◯ Signalman
ST ◯ Sonar Technician
STS ◯ Sonar Technician (Submarine)
STG ◯ Sonar Technician (Surface)
SW ◯ Steelworker
SK ◯ Storekeeper
TM ◯ Torpedoman's Mate
TMO ◯ Torpedoman's Mate (Operator)
TMT ◯ Torpedoman's Mate (Technician)
TD ◯ Tradevman
UT ◯ Utilitiesman
WT ◯ Weapons Technician
YN ◯ Yeoman

Mark in Column B the rank of your department head.

Mark in Column C the rank of your division officer.

	COLUMN A (Commanding Officer)	COLUMN B (Department Head)	COLUMN C (Division Officer)
Flag Officer	○	○	○
Captain	○	○	○
Commander	○	○	○
Lieutenant Commander	○	○	○
Lieutenant	○	○	○
Lieutenant (Junior Grade)	○	○	○
Ensign	○	○	○
Warrant Officer	○	○	○
Chief Petty Officer	○	○	○
Civilian	○	○	○

7. **Mark the type of command you work in.**

FLEET

- ○ Joint Fleet Force Staff
- ○ Group Division Wing Staff
- ○ Ship—Large Combatant (BB, Carrier, Cruiser)
- ○ Ship—Small Combatant (other than above)
- ○ Amphibious Class Ship
- ○ Support Ship (Cargo, Tender, Auxiliary)
- ○ Submarine
- ○ Aviation Squadron
- ○ Construction Battalion
- ○ Other Fleet Command

SHORE

- ○ Bureau Headquarters Staff
- ○ Station/Base Facility Shipyard
- ○ SYSCOM TEST Development Salvage
- ○ Communications Security Intelligence
- ○ Training Center Activity
- ○ Weapons Depot
- ○ Maintenance Activity Detachment Facility
- ○ Personnel Support Classification
- ○ Other Shore Command

8. **To what type of duty station are you assigned?**

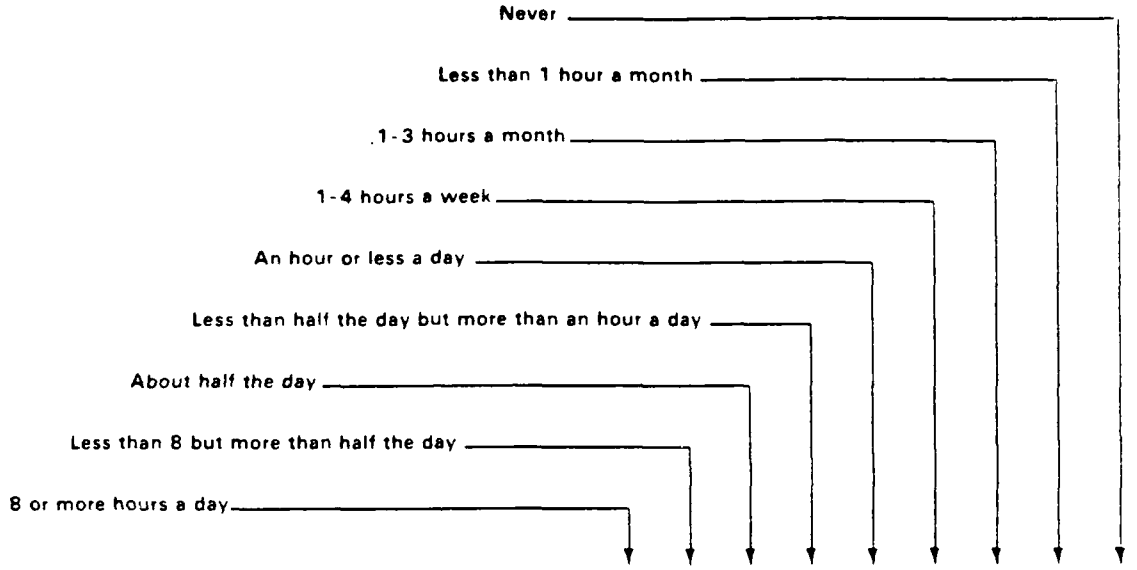
- ○ Ship Squadron/Submarine, in port
- ○ Ship/Squadron/Submarine, deployed
- ○ Ship/Submarine, in overhaul
- ○ Shore station, CONUS
- ○ Shore station, OUTUS
- ○ Other

WORK ENVIRONMENTS

Listed below are various work environments. Read the items. Mark how much time you spend in each of them.

Using this scale, darken the circle that describes the amount of time you spend in each environment while you do your current job.

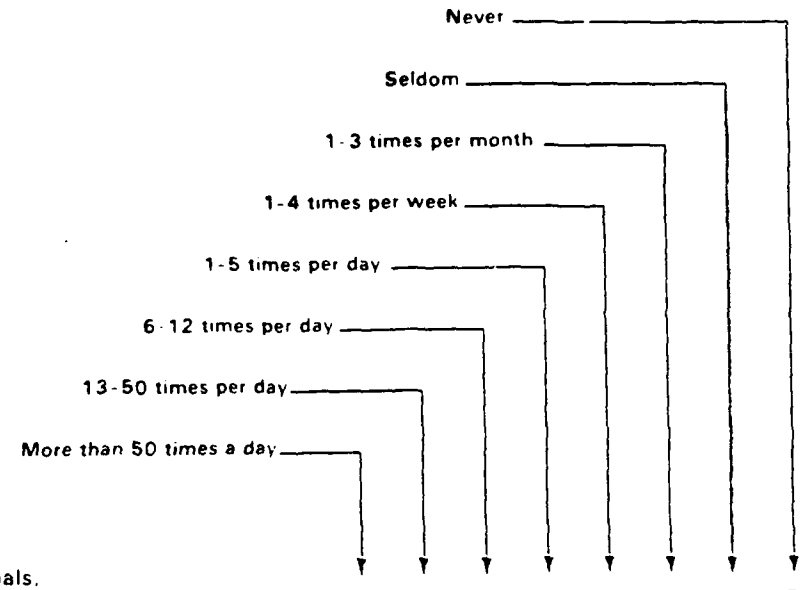
1. 8 or more hours a day
2. Less than 8 but more than half the day
3. About half the day
4. Less than half the day but more than an hour a day
5. An hour or less a day
6. 1-4 hours a week
7. 1-3 hours a month
8. Less than 1 hour a month
9. Never



1. Work outdoors	①	②	③	④	⑤	⑥	⑦	⑧	⑨
2. Work in an enclosed area that is hot	①	②	③	④	⑤	⑥	⑦	⑧	⑨
3. Work in an enclosed area that is cold	①	②	③	④	⑤	⑥	⑦	⑧	⑨
4. Work in polluted air (for example, dust, toxic fumes)	①	②	③	④	⑤	⑥	⑦	⑧	⑨
5. Work where respiration equipment is required (for example, face mask)	①	②	③	④	⑤	⑥	⑦	⑧	⑨
6. Work in presence of hazardous materials/chemicals (for example, mercury, acid, asbestos)	①	②	③	④	⑤	⑥	⑦	⑧	⑨
7. Work in spaces requiring sterile or clean conditions (for example, hospital, kitchen)	①	②	③	④	⑤	⑥	⑦	⑧	⑨
8. Work in areas subject to vibration	①	②	③	④	⑤	⑥	⑦	⑧	⑨
9. Work under extreme lighting conditions (for example, extreme darkness, extreme brightness/glare)	①	②	③	④	⑤	⑥	⑦	⑧	⑨
10. Work where you easily become dirty	①	②	③	④	⑤	⑥	⑦	⑧	⑨
11. Work in a cramped or uncomfortable space	①	②	③	④	⑤	⑥	⑦	⑧	⑨
12. Work in a quiet area	①	②	③	④	⑤	⑥	⑦	⑧	⑨
13. Work in an area of moderate noise (for example, machinery operating)	①	②	③	④	⑤	⑥	⑦	⑧	⑨
14. Work in an area of loud noise (for example, jet blast)	①	②	③	④	⑤	⑥	⑦	⑧	⑨
15. Work where ear protection is required	①	②	③	④	⑤	⑥	⑦	⑧	⑨
16. Work alone	①	②	③	④	⑤	⑥	⑦	⑧	⑨
17. Work with one other person	①	②	③	④	⑤	⑥	⑦	⑧	⑨
18. Work as part of a team or a group	①	②	③	④	⑤	⑥	⑦	⑧	⑨

The next group of items describes various kinds of tools and equipment. Using this scale, darken the circle that describes how often you use each particular type of tool or equipment.

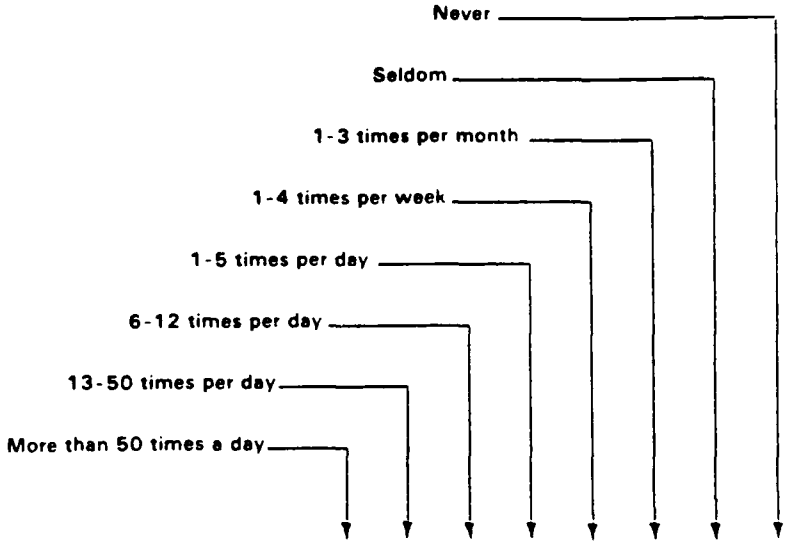
1. More than 50 times a day
2. 13 - 50 times per day
3. 6 - 12 times per day
4. 1 - 5 times per day
5. 1 - 4 times per week
6. 1 - 3 times per month
7. Seldom
8. Never



19. Use written materials (for example, tech manuals, publications, and directives)	1	2	3	4	5	6	7	8
20. Use numerical materials (for example, graphs, tables of numbers)	1	2	3	4	5	6	7	8
21. Use pictures or diagrams (for example, blueprints, maps)	1	2	3	4	5	6	7	8
22. Use pattern devices (for example, templates, stencils, radio codes)	1	2	3	4	5	6	7	8
23. Use visual displays (for example, gauges, radarscope)	1	2	3	4	5	6	7	8
24. Use physical measurement devices (for example, rulers, pressure gauges)	1	2	3	4	5	6	7	8
25. Use cameras, projectors, etc.	1	2	3	4	5	6	7	8
26. Use tools that handle things (for example, tongs, ladles)	1	2	3	4	5	6	7	8
27. Use tools that perform precise operations	1	2	3	4	5	6	7	8
28. Use tools with long handles (for example, brooms, shovels)	1	2	3	4	5	6	7	8
29. Use hand-held powered tools	1	2	3	4	5	6	7	8
30. Use remote-controlled equipment	1	2	3	4	5	6	7	8
31. Use stationary machines or equipment that you control	1	2	3	4	5	6	7	8
32. Use mooring or towing lines	1	2	3	4	5	6	7	8
33. Use machines that have fixed or variable settings (for example, TV selector switch, room thermostat, oven)	1	2	3	4	5	6	7	8
34. Use keyboard machines (for example, adding machines, typewriters, computer terminals, word processors)	1	2	3	4	5	6	7	8
35. Operate heavy equipment (for example, car, truck, fork lift, steam roller, earth mover)	1	2	3	4	5	6	7	8

The next items deal with physical requirements. Using this scale, darken the circle that shows how often each physical requirement is necessary in your job.

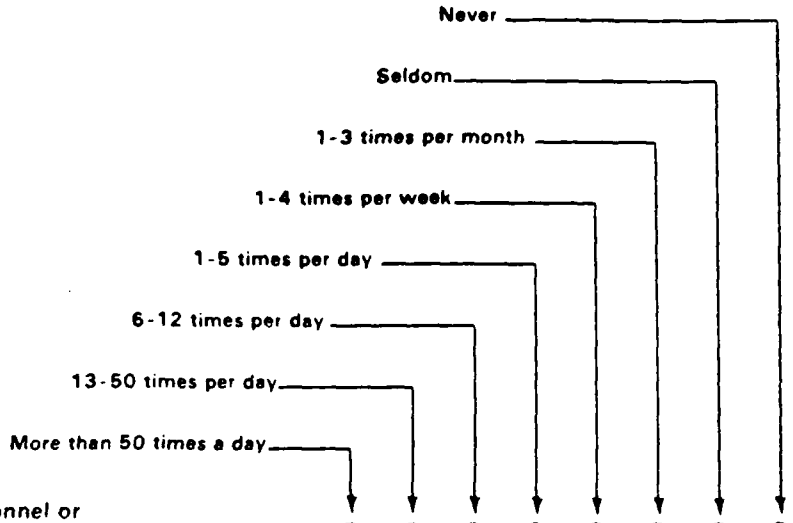
1. More than 50 times a day
2. 13 50 times per day
3. 6 12 times per day
4. 1 5 times per day
5. 1-4 times per week
6. 1-3 times per month
7. Seldom
8. Never



36. Perform tasks that require highly skilled body coordination	①	②	③	④	⑤	⑥	⑦	⑧
37. Work at tasks that require sitting for long periods	①	②	③	④	⑤	⑥	⑦	⑧
38. Work at tasks that require standing for long periods	①	②	③	④	⑤	⑥	⑦	⑧
39. Work in a squatting position	①	②	③	④	⑤	⑥	⑦	⑧
40. Work in a stooping position	①	②	③	④	⑤	⑥	⑦	⑧
41. Work at tasks that require climbing	①	②	③	④	⑤	⑥	⑦	⑧
42. Perform tasks that require steady hands and arms	①	②	③	④	⑤	⑥	⑦	⑧
43. Perform tasks that require you to be calm and controlled	①	②	③	④	⑤	⑥	⑦	⑧
44. Coordinate hand and/or foot movement with what you hear	①	②	③	④	⑤	⑥	⑦	⑧
45. Notice different patterns of sound (for example, Morse code, engines not running right)	①	②	③	④	⑤	⑥	⑦	⑧
46. Notice differences or changes in sound through loudness, pitch, or tone quality	①	②	③	④	⑤	⑥	⑦	⑧
47. Use touch	①	②	③	④	⑤	⑥	⑦	⑧
48. Use finger movement (for example, drawing instruments, keyboards)	①	②	③	④	⑤	⑥	⑦	⑧
49. Use hands directly to form or change materials	①	②	③	④	⑤	⑥	⑦	⑧
50. Sense body position and balance (for example, walking on I-beams, walking on deck)	①	②	③	④	⑤	⑥	⑦	⑧
51. Use odor (applied to any odor you need to smell to do your job)	①	②	③	④	⑤	⑥	⑦	⑧
52. Use taste	①	②	③	④	⑤	⑥	⑦	⑧
53. Tell the difference in colors	①	②	③	④	⑤	⑥	⑦	⑧

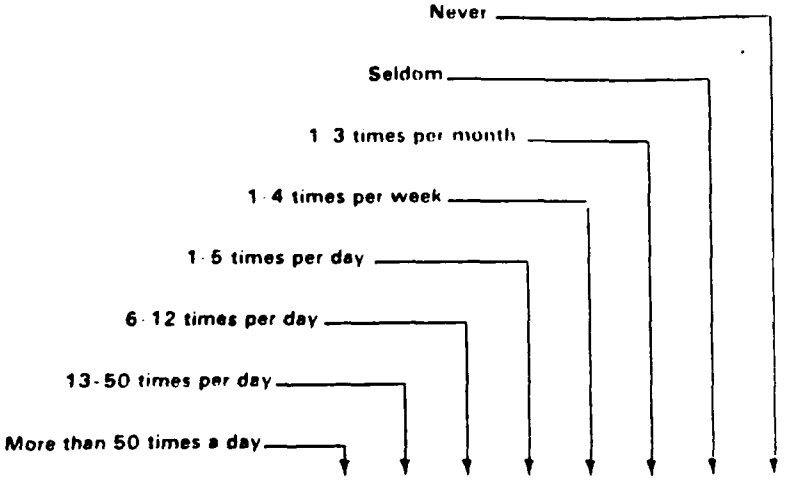
Listed below are various tasks and activities that may or may not be a part of your job. Using this scale, darken the circle that describes how often you perform each item.

1. More than 50 times a day
2. 13-50 times per day
3. 6-12 times per day
4. 1-5 times per day
5. 1-4 times per week
6. 1-3 times per month
7. Seldom
8. Never



54. Take actions to assure the safety of Navy personnel or the general public	①	②	③	④	⑤	⑥	⑦	⑧
55. Work under distractions	①	②	③	④	⑤	⑥	⑦	⑧
56. Perform under time pressure	①	②	③	④	⑤	⑥	⑦	⑧
57. Perform in dangerous situations	①	②	③	④	⑤	⑥	⑦	⑧
58. Work in emergency situations	①	②	③	④	⑤	⑥	⑦	⑧
59. Work independently, with little supervision	①	②	③	④	⑤	⑥	⑦	⑧
60. Work on a schedule that allows some freedom as long as the job gets done	①	②	③	④	⑤	⑥	⑦	⑧
61. Follow certain set procedures on your job (like following a check-out list to inspect equipment)	①	②	③	④	⑤	⑥	⑦	⑧
62. Judge distances	①	②	③	④	⑤	⑥	⑦	⑧
63. Judge speed of moving objects	①	②	③	④	⑤	⑥	⑦	⑧
64. Judge speed of some process (for example, cooking time, developing pictures)	①	②	③	④	⑤	⑥	⑦	⑧
65. Judge size or weight of objects without direct measurement	①	②	③	④	⑤	⑥	⑦	⑧
66. Judge peoples' abilities and personal qualities	①	②	③	④	⑤	⑥	⑦	⑧
67. Observe extreme detail of objects (for example, reading small print, setting ignition points)	①	②	③	④	⑤	⑥	⑦	⑧
68. Observe moderate details of objects (for example, hammering nails, reading gauges)	①	②	③	④	⑤	⑥	⑦	⑧
69. Observe features of nature (for example, cloud formations, stars, ocean currents)	①	②	③	④	⑤	⑥	⑦	⑧
70. Observe man-made features (for example, bridges, dams, docks)	①	②	③	④	⑤	⑥	⑦	⑧
71. Inspect products, objects, materials, or equipment	①	②	③	④	⑤	⑥	⑦	⑧
72. Code and decode messages (for example, Morse code, computer languages)	①	②	③	④	⑤	⑥	⑦	⑧
73. Make log entries	①	②	③	④	⑤	⑥	⑦	⑧
74. Maintain records	①	②	③	④	⑤	⑥	⑦	⑧

1. More than 50 times a day
2. 13-50 times per day
3. 6-12 times per day
4. 1-5 times per day
5. 1-4 times per week
6. 1-3 times per month
7. Seldom
8. Never



75. Arrange information into a meaningful order	1	2	3	4	5	6	7	8
76. Add, subtract, multiply, and divide numbers	1	2	3	4	5	6	7	8
77. Work with percentages, fractions, or decimals	1	2	3	4	5	6	7	8
78. Use algebraic, geometric, trigonometric, or statistical methods	1	2	3	4	5	6	7	8
79. Monitor mechanical/electronic indicators to identify events that happen rarely but are important (for example, malfunctions)	1	2	3	4	5	6	7	8
80. Monitor frequently changing mechanical/electronic indicators used for control of operations, traffic, etc.	1	2	3	4	5	6	7	8
81. Perform quality assurance inspections on equipment	1	2	3	4	5	6	7	8
82. Operate mechanical, electrical, or electronic equipment	1	2	3	4	5	6	7	8
83. Maintain electrical, electronic, or mechanical equipment	1	2	3	4	5	6	7	8
84. Repair electronic, mechanical, or electrical equipment	1	2	3	4	5	6	7	8
85. Move heavy (50 to 100 lbs.) or very heavy (over 100 lbs.) equipment and supplies	1	2	3	4	5	6	7	8
86. Arrange or pack objects or materials	1	2	3	4	5	6	7	8
87. Stow equipment or supplies as directed	1	2	3	4	5	6	7	8
88. Pick up or deliver supplies or materials	1	2	3	4	5	6	7	8
89. Register equipment or supplies	1	2	3	4	5	6	7	8
90. Order needed equipment and supplies	1	2	3	4	5	6	7	8
91. Complete forms	1	2	3	4	5	6	7	8
92. Administer paper and pencil and/or performance tests/ examinations	1	2	3	4	5	6	7	8
93. Carry out medical, biological, or chemical test procedures	1	2	3	4	5	6	7	8
94. Perform routine processing of people (for example, admission, discharge)	1	2	3	4	5	6	7	8
95. Handle cash transactions	1	2	3	4	5	6	7	8
96. Dispense supplies, equipment, medication, library books, etc.	1	2	3	4	5	6	7	8
97. Carry out routine health-care procedures	1	2	3	4	5	6	7	8
98. Provide first aid and treat non-serious illnesses	1	2	3	4	5	6	7	8
99. Assist personnel in obtaining information	1	2	3	4	5	6	7	8
100. Greet and direct visitors	1	2	3	4	5	6	7	8
101. Escort VIP's, visitors, etc.	1	2	3	4	5	6	7	8
102. Apprehend suspects and conduct personal searches	1	2	3	4	5	6	7	8
103. Enforce orders, restrictions, security procedures, or safety precautions	1	2	3	4	5	6	7	8
104. Conduct investigations of wrongdoing	1	2	3	4	5	6	7	8
105. Investigate accidents	1	2	3	4	5	6	7	8
106. Gather information or materials for use in making decisions	1	2	3	4	5	6	7	8
107. Interview others for radio, television, or newspapers	1	2	3	4	5	6	7	8

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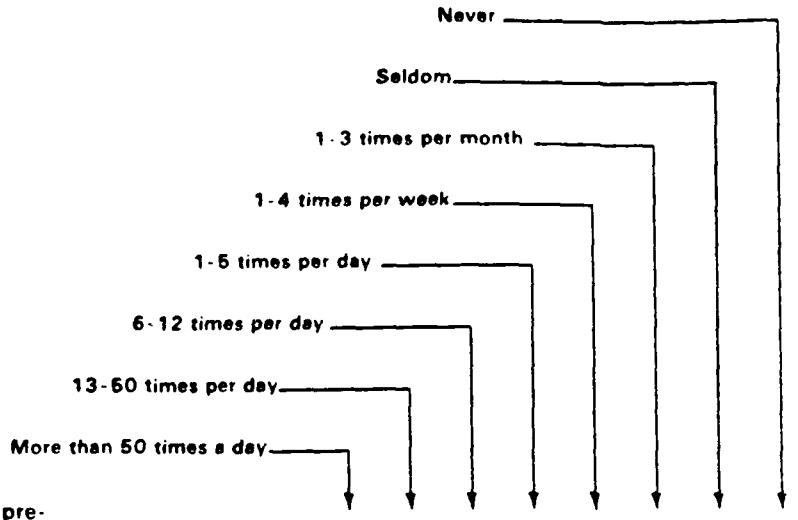

108. Conduct interviews for counseling, retention, pre-retirement, etc.	1	2	3	4	5	6	7	8
109. Conduct debriefings	1	2	3	4	5	6	7	8
110. Obtain information and assistance for resolving legal and procedural problems	1	2	3	4	5	6	7	8
111. Seek advice on career opportunities	1	2	3	4	5	6	7	8
112. Use or read hand signals, flags, signal light guns, etc.	1	2	3	4	5	6	7	8
113. Communicate between ship/shore/air locations	1	2	3	4	5	6	7	8
114. Exchange information informally	1	2	3	4	5	6	7	8
115. Participate in formal "idea exchange" sessions	1	2	3	4	5	6	7	8
116. Contribute to discussions in meetings	1	2	3	4	5	6	7	8
117. Defend ideas, views, or positions	1	2	3	4	5	6	7	8
118. Listen in order to understand others' points of view	1	2	3	4	5	6	7	8
119. Listen to briefings on work goals, priorities, progress, etc.	1	2	3	4	5	6	7	8
120. Receive directions, instructions, and assignments	1	2	3	4	5	6	7	8
121. Listen to technical or complicated information	1	2	3	4	5	6	7	8
122. Discuss work situation, problems, or contingencies	1	2	3	4	5	6	7	8
123. Receive individual or small group informal instruction or training	1	2	3	4	5	6	7	8
124. Attend training sessions	1	2	3	4	5	6	7	8
125. Attend meetings, conferences, or seminars not primarily concerned with training	1	2	3	4	5	6	7	8
126. Give feedback to superiors	1	2	3	4	5	6	7	8
127. Account to others for decisions and actions	1	2	3	4	5	6	7	8
128. Provide information to superiors on request	1	2	3	4	5	6	7	8
129. Write technical or status reports	1	2	3	4	5	6	7	8
130. Make telephone calls for superiors	1	2	3	4	5	6	7	8
131. Plan and organize programs or activities	1	2	3	4	5	6	7	8
132. Plan for the allocation and distribution of materials	1	2	3	4	5	6	7	8
133. Plan for the allocation of personnel to various programs	1	2	3	4	5	6	7	8
134. Coordinate and schedule work activities	1	2	3	4	5	6	7	8
135. Negotiate exchange of duties (SWAPS)	1	2	3	4	5	6	7	8
136. Advise others on job, career, or professional matters	1	2	3	4	5	6	7	8
137. Advise others on personal matters	1	2	3	4	5	6	7	8
138. Advise and assist individuals in resolving legal or procedural problems	1	2	3	4	5	6	7	8
139. Provide referral assistance	1	2	3	4	5	6	7	8
140. Help others fill out forms, write letters, or make requests	1	2	3	4	5	6	7	8
141. Provide sympathy or reassurance	1	2	3	4	5	6	7	8
142. Calm and pacify others	1	2	3	4	5	6	7	8
143. Conduct formal training sessions	1	2	3	4	5	6	7	8

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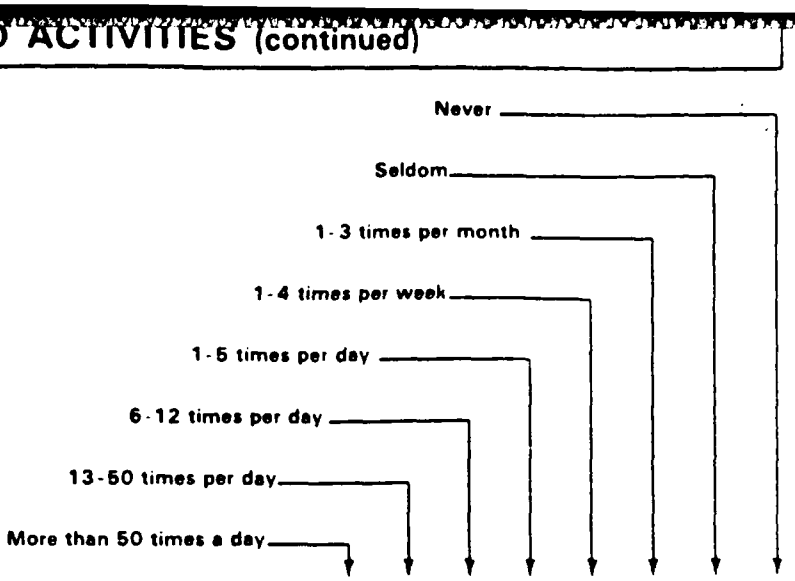

144. Provide informal, on-the-job training	1	2	3	4	5	6	7	8
145. Demonstrate techniques and procedures	1	2	3	4	5	6	7	8
146. Coordinate and schedule training programs or activities	1	2	3	4	5	6	7	8
147. Resolve complaints	1	2	3	4	5	6	7	8
148. Resolve conflicts about work assignments	1	2	3	4	5	6	7	8
149. Resolve conflicts about equipment or supplies	1	2	3	4	5	6	7	8
150. Resolve arguments between people	1	2	3	4	5	6	7	8
151. Handle people in dangerous or highly stressful situations	1	2	3	4	5	6	7	8
152. Handle people who are hurt, ill, or in pain	1	2	3	4	5	6	7	8
153. Handle people who are irrational, disturbed, or on drugs	1	2	3	4	5	6	7	8
154. Control others physically	1	2	3	4	5	6	7	8
155. Assess problems, emergencies, or crisis situations	1	2	3	4	5	6	7	8
156. Participate in search and rescue operations	1	2	3	4	5	6	7	8
157. Conduct search and rescue operations	1	2	3	4	5	6	7	8
158. Manage emergency situations or crises	1	2	3	4	5	6	7	8
159. Give directions, instructions, and orders	1	2	3	4	5	6	7	8
160. Conduct drills	1	2	3	4	5	6	7	8
161. Lead a special detail or work party	1	2	3	4	5	6	7	8
162. Direct the loading or movements of personnel	1	2	3	4	5	6	7	8
163. Establish goals	1	2	3	4	5	6	7	8
164. Clarify goals and tasks for others	1	2	3	4	5	6	7	8
165. Assign priorities to tasks	1	2	3	4	5	6	7	8
166. Assign tasks to people	1	2	3	4	5	6	7	8
167. Brief subordinates on work goals, priorities, progress, etc.	1	2	3	4	5	6	7	8
168. Conduct formal "idea exchange" sessions with subordinates	1	2	3	4	5	6	7	8
169. Provide feedback to subordinates	1	2	3	4	5	6	7	8
170. Evaluate the performance of subordinates	1	2	3	4	5	6	7	8
171. Write performance reports on personnel	1	2	3	4	5	6	7	8
172. Give 'pats on the back' and other informal rewards	1	2	3	4	5	6	7	8
173. Formally reward or commend others	1	2	3	4	5	6	7	8
174. Encourage and inspire efforts of others	1	2	3	4	5	6	7	8
175. Encourage re-enlistment	1	2	3	4	5	6	7	8
176. Conduct meetings	1	2	3	4	5	6	7	8
177. Make presentations or give briefings	1	2	3	4	5	6	7	8
178. Give interviews for radio, television, or newspapers	1	2	3	4	5	6	7	8
179. Answer brief questions about technical or operational status	1	2	3	4	5	6	7	8
180. Report on dangerous, emergency, or crisis situations	1	2	3	4	5	6	7	8
181. Interpret and report on information from status and/or plotting boards	1	2	3	4	5	6	7	8
182. Provide information on policies, procedures, and regulations	1	2	3	4	5	6	7	8
183. Transmit messages	1	2	3	4	5	6	7	8

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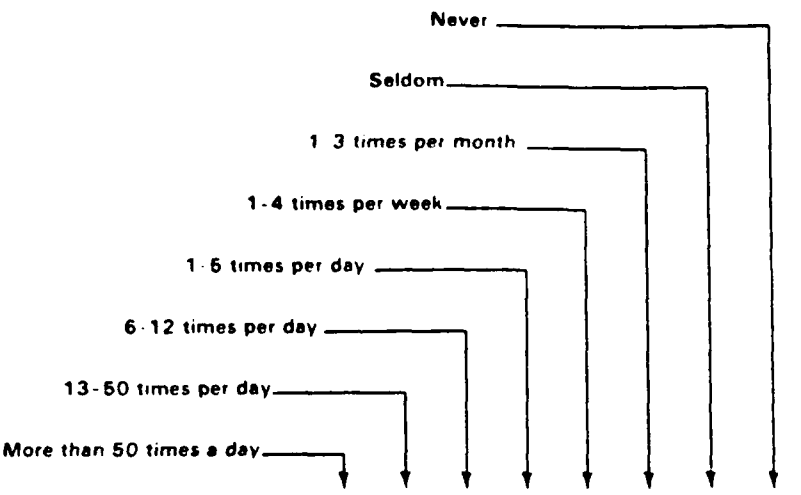


		1	2	3	4	5	6	7	8
184.	Communicate policies to others	①	②	③	④	⑤	⑥	⑦	⑧
185.	Arrange competitions between units	①	②	③	④	⑤	⑥	⑦	⑧
186.	Trade 'chits' to get a job done	①	②	③	④	⑤	⑥	⑦	⑧
187.	Work out deals for your watch crew or division to get special perks (for example, better "mid-rats")	①	②	③	④	⑤	⑥	⑦	⑧
188.	Arrange for your crew's requests for leave, transfer, or other administrative items to be processed rapidly	①	②	③	④	⑤	⑥	⑦	⑧
189.	Work out deals to make work easier or faster	①	②	③	④	⑤	⑥	⑦	⑧
190.	Work out deals to make living or working conditions better	①	②	③	④	⑤	⑥	⑦	⑧
191.	Maintain contact with appropriate superiors to ensure rapid handling of matters relating to your duty assignment	①	②	③	④	⑤	⑥	⑦	⑧
192.	Persuade people of higher rank toward some action, opinion, or position	①	②	③	④	⑤	⑥	⑦	⑧
193.	Maintain contact with appropriate peers to ensure rapid handling of matters relating to your duty assignment	①	②	③	④	⑤	⑥	⑦	⑧
194.	Persuade people of your rank toward some action, opinion, or position	①	②	③	④	⑤	⑥	⑦	⑧
195.	Maintain contact with appropriate people in lower ranks to ensure rapid handling of matters relating to your duty assignment	①	②	③	④	⑤	⑥	⑦	⑧
196.	Persuade people of lower ranks toward some action, opinion, or position	①	②	③	④	⑤	⑥	⑦	⑧
197.	Evaluate programs and recommend improvements in them	①	②	③	④	⑤	⑥	⑦	⑧
198.	Monitor combat readiness	①	②	③	④	⑤	⑥	⑦	⑧
199.	Monitor staff functions	①	②	③	④	⑤	⑥	⑦	⑧
200.	Monitor expenses	①	②	③	④	⑤	⑥	⑦	⑧
201.	Monitor work performance and standards	①	②	③	④	⑤	⑥	⑦	⑧
202.	Monitor compliance with security and safety procedures	①	②	③	④	⑤	⑥	⑦	⑧
203.	Listen to complaints and requests	①	②	③	④	⑤	⑥	⑦	⑧
204.	Approve or reject requests/proposals	①	②	③	④	⑤	⑥	⑦	⑧
205.	Stand operational, security, or other watches	①	②	③	④	⑤	⑥	⑦	⑧
206.	Act as phone talker	①	②	③	④	⑤	⑥	⑦	⑧
207.	Act as helmsman/planesman	①	②	③	④	⑤	⑥	⑦	⑧
208.	Participate in repair party	①	②	③	④	⑤	⑥	⑦	⑧
209.	Participate in first aid team	①	②	③	④	⑤	⑥	⑦	⑧
210.	Participate in fire party	①	②	③	④	⑤	⑥	⑦	⑧
211.	Participate in ammunition loading team	①	②	③	④	⑤	⑥	⑦	⑧
212.	Stand inspections	①	②	③	④	⑤	⑥	⑦	⑧
213.	Participate in color guard	①	②	③	④	⑤	⑥	⑦	⑧
214.	Participate in competitions between units	①	②	③	④	⑤	⑥	⑦	⑧
215.	Participate in working parties	①	②	③	④	⑤	⑥	⑦	⑧

CONTACTS

CONTACTS: The purpose of this section is to identify people that you must contact (either formally or informally) in order to perform your job successfully. Do not include contacts that are unrelated to your job

Directions: Down the left-hand side of the grid are listed various categories of people with whom you might come into contact. Across the top of the grid are listed eight situations in which you might come into contact with them. For each situation there are three columns

'F' = **frequently** (at least once a day)
'O' = **occasionally** (from four times a week to once every several months)
'R' = **rarely** (no more than once or twice a year)

Consider each category of people. Then in the row for that category, darken a circle for each situation in which you normally meet or talk with someone in that category. If the situation arises frequently, darken 'F.' If the situation arises occasionally, darken 'O.' If the situation occurs only rarely, darken 'R.' If you never contact people in that category and situation, leave 'F,' 'O,' and 'R' blank and go on to the next combination.

In the final column, darken the circle for the number of different individuals in each category that you normally encounter in the average work week.

SITUATIONS

CATEGORIES OF PEOPLE

CATEGORIES OF PEOPLE	one-on-one in person	telephone or other electronic media	casual unscheduled meetings	formal scheduled meetings	formal ceremonies and inspections	training sessions	on watch/patrol	in drills	How many different people each category do you encounter in the average work week? 0	1	2-4	5-9	10-19	20
MILITARY PERSONNEL														
Flag officers and other high officials	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Captains, Commanders, or Lieutenant Commanders	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Officers below the rank of Lt. Commander (including Warrant Officers)	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Chief Petty Officers in my rating (E7-E9)	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Chief Petty Officers in other ratings (E7-E9)	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Petty Officers in my rating (E4-E6)	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Petty Officers in other ratings (E4-E6)	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Non-rated personnel in my rating	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Other non-rated personnel	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Other U.S. service personnel (Army, Air Force, Marine Corps, Coast Guard)	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
CIVILIANS														
Civilian personnel employed by the Navy	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Salespeople and suppliers	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Professionals and specialists	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Contractor personnel	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Local governments, boards, and agencies	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
U.S. Government agencies and personnel	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
The media, PR, and special interest groups	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Families and dependents of naval personnel	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
The general public	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○
Foreign nationals — general public in foreign ports	F O R	F O R	F O R	F O R	F O R	F O R	F O R	F O R	○	○	○	○	○	○

Answer the following questions only in regard to job-relevant behavior (this includes rating-related work and watch-related work). Do not include personal interactions that have no bearing on your job performance. These are multiple-choice questions. Darken the circle indicating your answer (the percentage, the number of times, or whether or not the category of person applies).

1. **What is the size of your division?**
   - 1
   - 2-5
   - 6-10
   - 11-20
   - Over 20

2. **How often do personnel transfer in and out of your division?**
   - Very few transfers, members work together for a long time
   - Some transfers, but a core of members stay with division
   - Frequent transfers, only a few members stay long
   - Membership in the division is constantly changing

3. **Where does most of your rating-related work take place?** (Mark only one)
   - Always in one location
   - Usually in one location
   - In two or three particular locations
   - In many locations

4. **Do you go to your work, or does your work come to you?** (Mark only one)
   - I go to my work
   - My work comes to me

5. **Who do you usually ask for expert advice about dealing with people?** (Mark only one)
   - My superiors
   - My peers
   - My subordinates
   - Specialists
   - No one—I never ask for advice about dealing with people

6. **Who do you usually ask for technical advice or assistance?** (Mark only one)
   - My superiors
   - My peers
   - My subordinates
   - Specialists
   - No one—I never ask for technical advice or assistance

7. **Who would you turn to for assistance in accomplishing a particularly difficult or heavy work assignment?** (Mark only one)
   - My superiors
   - My peers
   - My subordinates
   - Specialists
   - No one

8. **Who do you report to directly?** (Mark only one)
   - Flag officers and other high officials
   - Captains, Commanders, or Lt Commanders
   - Officers below the rank of Lt Commander (including Warrant Officers)
   - Chief Petty Officers in my rating
   - Chief Petty Officers in other ratings
   - Petty Officers in another rating
   - Petty Officers in my rating
   - Non-rated personnel in my rating
   - Non-rated personnel in other ratings
   - Civilian personnel

9. **Who gives you orders directly and in person?** (Mark all that apply)
   - Flag officers and other high officials
   - Captains, Commanders, or Lt Commanders
   - Officers below the rank of Lt Commander (including Warrant Officers)
   - Chief Petty Officers in my rating
   - Chief Petty Officers in other ratings
   - Petty Officers in other ratings
   - Petty Officers in my rating
   - Non-rated personnel in my rating
   - Non-rated personnel in other ratings
   - Civilian personnel

10. **With whom do you work most closely?** (Mark only one)
    - Flag officers and other high officials
    - Captains, Commanders, or Lt Commanders
    - Officers below the rank of Lt Commander (including Warrant Officers)
    - Chief Petty Officers in my rating
    - Chief Petty Officers in other ratings
    - Petty Officers in other ratings
    - Petty Officers in my rating
    - Non-rated personnel in my rating
    - Non-rated personnel in other ratings
    - Civilian personnel

11. **How many people do you regularly supervise?**
    - None
    - 1-4
    - 5-9
    - 10-19
    - 20-29
    - 30 or more

12. **Who do you supervise directly?** (Mark all that apply)

- ( ) Chief Petty Officers in my rating
- ( ) Chief Petty Officers in other ratings
- ( ) Petty Officers in other ratings
- ( ) Petty Officers in my rating
- ( ) Non-rated personnel in my rating
- ( ) Non rated personnel in other ratings
- ( ) Civilian personnel
- ( ) No one

13. ***In some cases, the way you must communicate is precisely defined — that is, you must use particular words and phrases (for example, when providing meteorological information or giving air/sea traffic control directions). What percentage of your work communications are in a precisely defined form?***

- ( ) 0%
- ( ) 10%
- ( ) 20%
- ( ) 30%
- ( ) 40%
- ( ) 50%
- ( ) 60%
- ( ) 70%
- ( ) 80%
- ( ) 90%
- ( ) 100%

14. **What percentage of information about your current job was covered by this questionnaire?**

- ( ) 0%
- ( ) 10%
- ( ) 20%
- ( ) 30%
- ( ) 40%
- ( ) 50%
- ( ) 60%
- ( ) 70%
- ( ) 80%
- ( ) 90%
- ( ) 100%

If you wish to write comments about your current job that did not get covered by this questionnaire, please do so on a separate piece of paper (the back of the cover letter, for instance). Send the comments along with this questionnaire.

Thank you for your cooperation in completing this questionnaire.

Please place your questionnaire in the return envelope and mail it to:

NAVY JOB ANALYSIS PROJECT
APPLIED RESEARCH GROUP
9660 Hillcroft, Suite 337
Houston, TX 77096

APPENDIX B

FREQUENCY DISTRIBUTIONS FOR CATEGORICAL VARIABLES

CURRENT RATING

RATING	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
AVIATION BOATSWA	24	24	4.040	4.040
AIR TRAFFIC CONT	26	50	4.377	8.418
AEROGRAPHERS MAT	23	73	3.872	12.290
AVIATION ELECTRO	27	100	4.545	16.835
BOATSWAINS MATE	13	113	2.189	19.024
BOILER TECH	18	131	3.030	22.054
BUILDER	16	147	2.694	24.747
DISBURSING CLERK	23	170	3.872	28.620
DATA PROCESSING	28	198	4.714	33.333
DENTAL TECH	28	226	4.714	38.047
GUNNERS MATE	23	249	3.872	41.919
HOSPITAL CORPSMA	25	274	4.209	46.128
INTELLIGENCE SPE	27	301	4.545	50.673
JOURNALIST	28	329	4.714	55.387
LEGALMAN	24	353	4.040	59.428
MASTER AT ARMS	23	376	3.872	63.300
MESS MANAGEMENT	18	394	3.030	66.330
NAVY COUNSELOR	24	418	4.040	70.370
OPERATIONS SPECI	24	442	4.040	74.411
PERSONNELMAN	27	469	4.545	78.956
RELIGIOUS PROGRA	28	497	4.714	83.670
SHIPS SERVICEMAN	21	518	3.535	87.205
STOREKEEPER	24	542	4.040	91.246
SONAR TECH	21	563	3.535	94.781
YEOMAN	20	583	3.367	98.148
MISSING	11	594	1.852	100.000

RATING TRAINED IN

RATING TRAINED IN	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
AVIATION BOATSWA	18	16	3.030	3.030
AIR TRAFFIC CONT	23	41	3.872	6.902
AEROGRAPHERS MAT	22	63	3.704	10.606
AVIATION ELECTRO	27	90	4.545	15.152
BOATSWAINS MATE	16	106	2.694	17.845
BOILER TECH	16	122	2.694	20.539
BUILDER	14	136	2.357	22.896
DISBURSING CLERK	10	146	1.684	24.579
DATA PROCESSING	23	169	3.872	28.451
DENTAL TECH	27	196	4.545	32.997
GUNNERS MATE	18	214	3.030	36.027
HOSPITAL CORPSMA	33	247	5.556	41.582
INTELLIGENCE SPE	11	258	1.852	43.434
JOURNALIST	17	275	2.862	46.296
LEGALMAN	2	277	0.337	46.633
MASTER AT ARMS	3	280	0.505	47.138
MESS MANAGEMENT	11	291	1.852	48.990
NAVY COUNSELOR	3	294	0.505	49.495
OPERATIONS SPECI	17	311	2.862	52.357
PERSONNELMAN	34	345	5.724	58.081
RELIGIOUS PROGRA	11	356	1.852	59.933
SHIPS SERVICEMAN	16	372	2.694	62.626
STOREKEEPER	21	393	3.535	66.162
MISSING	140	533	23.569	89.731
SONAR TECH	20	553	3.367	93.098
YEOMAN	41	594	6.902	100.000

GRADE

GRADE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	8	.	.	.
E1	2	2	0.341	0.341
E2	9	11	1.536	1.877
E3	67	78	11.433	13.311
E4	77	155	13.140	26.451
E5	61	216	10.410	36.860
E6	79	295	13.481	50.341
E7	164	459	27.986	78.328
E8	70	529	11.945	90.273
E9	57	586	9.727	100.000

GROUP	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	8	.	.	.
APPRENTICE	78	78	13.311	13.311
JOURNEYMAN	217	295	37.031	50.341
MASTER	291	586	49.659	100.000

COMMANDING OFFICER RANK

CORANK	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	5	.	.	.
FLAG OFFICER	49	49	8.319	8.319
CAPTAIN	361	410	61.290	69.610
COMMANDER	148	558	25.127	94.737
LT COMMANDER	16	574	2.716	97.453
LIEUTENANT	9	583	1.528	98.981
LIEUTENANT JG	2	585	0.340	99.321
CHIEF PETTY OFFI	3	588	0.509	99.830
CIVILIAN	1	589	0.170	100.000

DEPARTMENT HEAD RANK

DHRANK	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	29	.	.	.
FLAG OFFICER	4	4	0.708	0.708
CAPTAIN	61	65	10.796	11.504
COMMANDER	174	239	30.796	42.301
LT COMMANDER	143	382	25.310	67.611
LIEUTENANT	109	491	19.292	86.903
LIEUTENANT JG	6	497	1.062	87.965
ENSIGN	9	506	1.593	89.558
WARRANT OFFICER	10	516	1.770	91.327
CHIEF PETTY OFFI	31	547	5.487	96.814
CIVILIAN	18	565	3.186	100.000

DIVISION OFFICER RANK

DORANK	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	75	.	.	.
FLAG OFFICER	1	1	0.193	0.193
CAPTAIN	9	10	1.734	1.927
COMMANDER	33	43	6.358	8.285
LT COMMANDER	57	100	10.983	19.268
LIEUTENANT	148	248	28.516	47.784
LIEUTENANT JG	57	305	10.983	58.767
ENSIGN	47	352	9.056	67.823
WARRANT OFFICER	30	382	5.780	73.603
CHIEF PETTY OFFI	123	505	23.699	97.303
CIVILIAN	14	519	2.697	100.000

TYPE OF COMMAND

TYPECOM	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	253	253	42.593	42.593
OTHER FLEET COMM	15	268	2.525	45.118
BUREAU/HEADQUART	28	296	4.714	49.832
STATION/BASE/FAC	94	390	15.825	65.657
SYSCOM/TEST/DEVE	8	398	1.347	67.003
COMMUNICATIONS/S	13	411	2.189	69.192
TRAINING CENTER	58	469	9.764	78.956
MAINTENANCE ACTI	18	487	3.030	81.987
PERSONNEL SUPPOR	31	518	5.219	87.205
OTHER SHORE COMM	76	594	12.795	100.000

TYPE OF DUTY STATION

TYPEDUTY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	9	.	.	.
SHIP/SQUADRON/SU	182	182	31.111	31.111
SHIP/SUBMARINE I	13	195	2.222	33.333
SHORE STATION CO	281	476	48.034	81.368
SHORE STATION OU	69	545	11.795	93.162
OTHER	40	585	6.838	100.000

DIVISION SIZE

DIVSIZE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	7	.	.	.
1	16	16	2.726	2.726
2 TO 4	84	100	14.310	17.036
5 TO 9	101	201	17.206	34.242
10 TO 19	128	329	21.806	56.046
20 OR MORE	258	587	43.952	100.000

FREQUENCY OF TRANSFERS

TRANFREQ	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	11	.	.	.
FEW TRANSFERS	217	217	37.221	37.221
SOME TRANSFERS	243	460	41.681	78.902
FREQUENT TRANSFE	79	539	13.551	92.453
CONSTANT CHANGIN	44	583	7.547	100.000

LOCATION OF WORK

WHEREWORK	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	7	.	.	.
ALWAYS IN 1 LOC	108	108	18.399	18.399
USUALLY IN 1 LOC	195	303	33.220	51.618
2 OR 3 PARTICULA	150	453	25.554	77.172
MANY LOCATIONS	134	587	22.828	100.000

WORK MOBILITY

GOWORK	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	5	.	.	.
I GO TO MY WORK	409	409	69.440	69.440
MY WORK COMES TO	180	589	30.560	100.000

WHO ASKED ABOUT PEOPLE PROBLEMS

ASKPEOP	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	10	.	.	.
SUPERIORS	297	297	50.856	50.856
PEERS	166	463	28.425	79.281
SUBORDINATES	7	470	1.199	80.479
SPECIALISTS	43	513	7.363	87.842
NO ONE	71	584	12.158	100.000

WHO ASKED ABOUT TECHNICAL PROBLEMS

ASKTECH	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	9	.	.	.
SUPERIORS	255	255	43.590	43.590
PEERS	161	416	27.521	71.111
SUBORDINATES	16	432	2.735	73.846
SPECIALISTS	135	567	23.077	96.923
NO ONE	18	585	3.077	100.000

WHO ASSISTS ON DIFFICULT PROBLEMS

WHOASST	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	16	.	.	.
SUPERIORS	175	175	30.277	30.277
PEERS	212	387	36.678	66.955
SUBORDINATES	127	514	21.972	88.927
SPECIALISTS	35	549	6.055	94.983
NO ONE	29	578	5.017	100.000

RANK REPORTED TO DIRECTLY

REPTO	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	6	.	.	.
FLAG OFFICERS	8	8	1.361	1.361
CAPT CMDR OR LTC	191	199	32.483	33.844
OTHER OFFICERS	112	311	19.048	52.891
CHIEF IN MY PATI	96	407	16.327	69.218
CHIEF IN OTHER P	27	434	4.592	73.810
PETTY OFFICER IN	140	574	23.810	97.619
CIVILIAN PERSONN	14	588	2.381	100.000

ORDERS FROM FLAG OFFICERS

ORDERS1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	567	567	95.455	95.455
YES	27	594	4.545	100.000

ORDERS FROM CAPT CMDR OR LT CMDR

ORDERS2	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	291	291	48.990	48.990
YES	303	594	51.010	100.000

ORDERS FROM OFFICERS & WARRANT OFF

ORDERS3	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	356	356	59.933	59.933
YES	238	594	40.067	100.000

ORDERS FROM CPOS OWN RATING

ORDERS4	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	410	410	69.024	69.024
YES	184	594	30.976	100.000

ORDERS FROM CPOS OTHER RATINGS

ORDERS5	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	509	509	85.690	85.690
YES	85	594	14.310	100.000

ORDERS FROM POS OTHER RATING

ORDERS6	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	558	558	93.939	93.939
YES	36	594	6.061	100.000

ORDERS FROM POS OWN RATING

ORDERS7	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	436	436	73.401	73.401
YES	158	594	26.599	100.000

ORDERS FROM NONRATED OWN RATING

ORDERS8	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	588	588	98.990	98.990
YES	6	594	1.010	100.000

ORDERS FROM NONRATED OTHER RATINGS

ORDERS9	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	592	592	99.663	99.663
YES	2	594	0.337	100.000

ORDERS FROM CIVILIANS

ORDERS10	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	555	555	93.434	93.434
YES	39	594	6.566	100.000

RANK WORKED WITH MOST CLOSELY

CLOSWORK	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	20	.	.	.
FLAG OFFICERS	3	3	0.523	0.523
CAPT CMDR OR LTC	102	105	17.770	18.293
OTHER OFFICERS	52	157	9.059	27.352
CHIEF IN MY RATE	76	233	13.240	40.592
CHIEF IN OTHER R	35	268	6.096	46.690
PETTY OFFICER IN	249	517	43.380	90.070
NONRATED PERSONN	24	541	4.181	94.251
NONRATED PERS IN	7	548	1.220	95.470
CIVILIAN PERSONN	26	574	4.530	100.000

NUMBER OF SUPERVISEES

NSUPVD	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	5	.	.	.
NONE	140	140	23.769	23.769
1 TO 4	189	329	32.088	55.857
5 TO 9	89	418	15.110	70.968
10 TO 19	72	490	12.224	83.192
20 TO 29	39	529	6.621	89.813
30 OR MORE	60	589	10.187	100.000

SUPERVISE CPOS OWN RATING

DIRSUP1	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	528	528	88.552	88.552
YES	66	594	11.448	100.000

SUPERVISE CPOS OTHER RATINGS

DIRSUP2	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	533	533	89.731	89.731
YES	61	594	10.269	100.000

SUPERVISE POS OTHER RATINGS

DIRSUP3	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	411	411	69.192	69.192
YES	183	594	30.808	100.000

SUPERVISE POS OWN RATING

DIRSUP4	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	303	303	51.010	51.010
YES	291	594	48.990	100.000

SUPERVISE NONFID PERS OWN RATING

DIRSUP5	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	381	381	64.141	64.141
YES	213	594	35.859	100.000

SUPERVISE NONFATEL PERS OTHER RATINGS

DIRSUP6	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	462	462	77.778	77.778
YES	132	594	22.222	100.000

SUPERVISE CIVILIANS

DIRSUP7	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	507	507	85.354	85.354
YES	87	594	14.646	100.000

SUPERVISE NO ONE

DIRSUP8	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NO	458	458	77.104	77.104
YES	136	594	22.896	100.000

PRECISELY DEFINED COMMUNICATION USAGE

FIXDTALK	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	81	81	13.636	13.636
10%	105	186	17.677	31.313
20%	56	242	9.428	40.741
30%	40	282	6.734	47.475
40%	37	319	6.229	53.704
50%	77	396	12.963	66.667
60%	44	440	7.407	74.074
70%	37	477	6.229	80.303
80%	50	527	8.418	88.721
90%	45	572	7.576	96.296
100%	22	594	3.704	100.000

PERCENTAGE COVERAGE OF JOB

COVERAGE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
MISSING	13	13	2.189	2.189
10%	93	106	15.657	17.845
20%	66	172	11.111	28.956
30%	92	264	15.488	44.444
40%	71	335	11.953	56.397
50%	57	392	9.596	65.993
60%	52	444	8.754	74.747
70%	56	500	9.428	84.175
80%	58	558	9.764	93.939
90%	26	584	4.377	98.316
100%	10	594	1.684	100.000

APPENDIX C

DESCRIPTIVE STATISTICS FOR TASK AND ACTIVITY ITEMS

VARIABLE	LABEL	MEAN
I1	WORK OUTDOORS	2.07
I2	WORK IN AN ENCLOSED AREA THAT IS HOT	2.52
I3	WORK IN AN ENCLOSED AREA THAT IS COLD	2.46
I4	WORK IN POLLUTED AIR	1.09
I5	WORK WITH RESPIRATION EQUIP REQUIRED	0.46
I6	WORK IN PRES OF HAZARDOUS MATERIAL/CHEM	0.93
I7	WORK IN SPACES REQ STERILE/CLEAN COND	0.96
I8	WORK IN AREAS SUBJECT TO VIBRATION	1.80
I9	WORK UNDER EXTREME LIGHTING CONDITIONS	1.65
I10	WORK WHERE YOU EASILY BECOME DIRTY	2.30
I11	WORK IN A CRAMPED OR UNCOMFORTABLE SPACE	1.83
I12	WORK IN A QUIET AREA	4.14
I13	WORK IN AN AREA OF MODERATE NOISE	3.62
I14	WORK IN AN AREA OF LOUD NOISE	1.51
I15	WORK WHERE EAR PROTECTION IS REQUIRED	1.57
I16	WORK ALONE	3.61
I17	WORK WITH ONE OTHER PERSON	4.29
I18	WORK AS PART OF A TEAM OR A GROUP	5.84
I19	USE WRITTEN MATERIALS	4.43
I20	USE NUMERICAL MATERIALS	2.99
I21	USE PICTURES OR DIAGRAMS	2.21
I22	USE PATTERN DEVICES	1.29

VARIABLE	STANDARD DEVIATION	N
I1	2.33	589
I2	2.83	590
I3	3.01	586
I4	2.10	561
I5	1.33	590
I6	2.13	591
I7	2.40	586
I8	2.86	584
I9	2.64	589
I10	2.73	591
I11	2.76	583
I12	3.13	577
I13	3.09	587
I14	2.45	584
I15	2.47	583
I16	2.82	580
I17	2.66	583
I18	2.47	591
I19	1.61	592
I20	2.03	591
I21	2.03	590
I22	1.70	586

VARIABLE	LABEL	MEAN
I23	USE VISUAL DISPLAYS	1.65
I24	USE PHYSICAL MEASUREMENT DEVICES	2.22
I25	USE CAMERAS PROJECTORS ETC.	1.17
I26	USE TOOLS THAT HANDLE THINGS	0.70
I27	USE TOOLS THAT PERFORM PRECISE OPERATION	1.34
I28	USE TOOLS WITH LONG HANDLES	1.37
I29	USE HAND-HELD POWERED TOOLS	0.84
I30	USE REMOTE-CONTROLLED EQUIPMENT	0.60
I31	USE STAT MACH/EQUIP THAT YOU CONTROL	2.54
I32	USE MOORING OR TOWING LINES	0.23
I33	USE MACHINES W/FIXED OR VAR SETTINGS	2.02
I34	USE KEYBOARD MACHINES	4.21
I35	OPERATE HEAVY EQUIPMENT	1.15
I36	PERF TSKS REQ HILY SKILLED BODY COORD	1.77
I37	WORK AT TSKS REQ SITTING FOR LONG PER	4.66
I38	WORK AT TSKS REQ STANDING FOR LONG PER	2.87
I39	WORK IN A SQUATTING POSITION	0.98
I40	WORK IN A STOOPING POSITION .	1.11
I41	WORK AT TASKS THAT REQUIRE CLIMBING	1.17
I42	PERF TSKS REQ STEADY HANDS AND ARMS	2.41
I43	PERF TSKS REQ YOU TO BE CALM & CONTROLLED	4.96
I44	COORD HAND &/OR FOOT MOVE W/WHAT HEAR	1.67

VARIABLE	STANDARD DEVIATION	N
I23	2.35	590
I24	2.00	589
I25	1.42	585
I26	1.40	590
I27	1.95	584
I28	1.69	588
I29	1.29	589
I30	1.33	589
I31	2.44	583
I32	0.71	587
I33	2.15	588
I34	2.15	591
I35	1.60	590
I36	1.95	588
I37	2.06	589
I38	2.02	589
I39	1.42	589
I40	1.54	590
I41	1.70	584
I42	2.22	586
I43	2.08	587
I44	2.26	589

VARIABLE	LABEL	MEAN
I45	NOTICE DIFFERENT PATTERNS OF SOUND	1.34
I46	M1 SOUND DIFF/CHNG--LOUD/PITCH/TONE QUAL	1.53
I47	USE TOUCH	2.9c
I48	USE FINGER MOVEMENT	4.35
I49	USE HANDS DIR TO FORM/CHANGE MATERIALS	2.12
I50	SENSE BODY POSITION AND BALANCE	1.50
I51	USE ODOR	0.76
I52	USE TASTE	0.36
I53	TELL THE DIFFERENCE IN COLORS	2.3c
I54	ACT TO ASSURE SAFETY OF USN PERS/GEN PUB	3.23
I55	WORK UNDER DISTRACTIONS	4.36
I56	PERFORM UNDER TIME PRESSURE	4.19
I57	PERFORM IN DANGEROUS SITUATIONS	1.48
I58	WORK IN EMERGENCY SITUATIONS	1.53
I59	WORK INDEP, W/LITTLE SUPERVISION	5.69
I60	WK W/SCHED ALLOWING FREEDOM IF JOB DONE	4.39
I61	FOLLOW CERTAIN SET PROCEDURES ON JOB	3.77
I62	JUDGE DISTANCES	1.81
I63	JUDGE SPEED OF MOVING OBJECTS	1.37
I64	JUDGE SPEED OF SOME PROCESS	1.21
I65	JUDGE SIZE/WT OF OBJECTS W/O DIR MEAS	1.19
I66	JUDGE INDIV ABILITIES & PERS QUALITIES	3.77

VARIABLE	STANDARD DEVIATION	N
I45	2.07	587
I46	2.15	586
I47	2.68	573
I48	2.41	588
I49	2.37	587
I5c	2.23	590
I51	1.54	588
I52	1.13	588
I53	2.43	590
I54	2.26	588
I55	2.10	587
I56	1.96	587
I57	1.96	588
I58	1.61	580
I59	1.65	583
I60	2.16	590
I61	2.18	586
I62	2.17	588
I63	2.02	586
I64	1.86	585
I65	1.61	588
I66	2.25	582

VARIABLE	LABEL	MEAN
I67	OBSERVE EXTREME DETAIL OF OBJECTS	2.45
I66	OBSERVE MODERATE DETAILS OF OBJECTS	2.02
I69	OBSERVE FEATURES OF NATURE	1.07
I70	OBSERVE MAN-MADE FEATURES	0.93
I71	INSPECT PRODUCTS/OBJECTS/MATERIALS/EQUIP	2.77
I72	CODE AND DECODE MESSAGES	1.09
I73	MAKE LOG ENTRIES	3.32
I74	MAINTAIN RECORDS	4.74
I75	ARRANGE INFO INTO MEANINGFUL ORDER	4.45
I76	ADD, SUBTRACT, MULTIPLY, & DIVIDE NOS.	3.82
I77	WORK WITH PERCENTAGES/FRACTIONS/DECIMALS	3.10
I78	USE ALGEB/GEOM/TRIG/STATISTICAL METHODS	1.65
I79	ID RARE/IMPT EVENTS WITH MECH/ELEC INDIC	1.53
I80	MONITOR FREQ CHNGING MECH/ELEC CONTROLS	1.21
I81	PERF QA INSPECTIONS ON EQUIPMENT	1.48
I82	OPERATE MECH/ELECTRIC/ELECTRONIC EQUIP	3.56
I83	MAINTAIN ELECTRIC/ELECTRONIC/MECH EQUIP	1.59
I84	REPAIR ELECTRONIC/MECH/ELECTRIC EQUIP	0.75
I85	MOVE HEAVY	1.32
I86	ARRANGE OR PACK OBJECTS OR MATERIALS	1.47
I87	STOW EQUIPMENT OR SUPPLIES AS DIRECTED	1.76
I88	PICK UP OR DELIVER SUPPLIES OR MATERIALS	1.46

VARIABLE	STANDARD DEVIATION	N
I67	2.27	587
I66	2.14	587
I69	1.84	589
I70	1.67	589
I71	2.17	589
I72	1.86	585
I73	2.11	587
I74	1.71	590
I75	1.80	590
I76	1.99	591
I77	2.16	586
I78	1.91	585
I79	1.98	591
I80	2.02	587
I81	1.82	589
I82	2.36	583
I83	2.01	586
I84	1.47	585
I85	1.50	588
I86	1.55	586
I87	1.68	590
I88	1.53	588

VARIABLE	LABEL	MEAN
I89	REGISTER EQUIPMENT OR SUPPLIES	1.16
I90	ORDER NEEDED EQUIPMENT AND SUPPLIES	1.94
I91	COMPLETE FORMS	3.60
I92	ADMIN PAPER & PENCIL &/OR PERF TEST/EXAM	1.14
I93	CARRY OUT MED/BIOL/CHEM TEST PROCEDURES	0.37
I94	PERFORM ROUTINE PROCESSING OF PEOPLE	1.31
I95	HANDLE CASH TRANSACTIONS	0.74
I96	DISPENSE SUPP/EQUIP/MEDIC/LIB BOOKS/ETC	1.01
I97	CARRY OUT ROUTINE HEALTH-CARE PROCEDURES	0.79
I98	PROV FIRSTAID, TREAT NON-SERIOUS ILLNESS	0.51
I99	ASSIST PERSONNEL IN OBTAINING INFO	3.97
I100	GREET AND DIRECT VISITORS	2.48
I101	ESCORT VIPS VISITORS ETC.	1.44
I102	APPREHEND SUSPECTS COND PERS SEARCHES	0.50
I103	ENFORCE ORD/RESTR/SEC PROCED/SAF PRECAUT	2.95
I104	CONDUCT INVESTIGATIONS OF WRONGDOING	0.90
I105	INVESTIGATE ACCIDENTS	0.55
I106	GATHER INFO ON MAT USED IN MAKING DECIS	3.14
I107	INTERVIEW OTHERS FOR RADIO/TV/NEWSPAPERS	0.24
I108	INTERV FOR COUNS/RETENTION/PRE-RET/ETC	1.67
I109	CONDUCT DEBRIEFINGS	1.14
I110	GET INFO/ASSIST RE LEGAL/PROCED PROBLEMS	1.26

VARIABLE	STANDARD DEVIATION	N
I89	1.46	590
I90	1.60	584
I91	1.85	585
I92	1.46	586
I93	1.03	586
I94	1.90	588
I95	1.43	588
I96	1.57	589
I97	1.58	584
I98	0.96	576
I99	1.95	586
I100	1.66	584
I101	1.33	583
I102	1.07	581
I103	2.23	587
I104	1.34	584
I105	1.00	584
I106	2.01	587
I107	0.84	586
I108	1.73	591
I109	1.46	589
I110	1.59	589

VARIABLE	LABEL	MEAN
I111	SEEK ADVICE ON CAREER OPPORTUNITIES	1.60
I112	USE/READ HAND SIGS/FLAGS/SIG LT GUNS/ETC	0.49
I113	COMMUNIC BET SHIP/SHORE/AIR LOCATIONS	1.06
I114	EXCHANGE INFORMATION INFORMALLY	3.45
I115	PARTIC IN FORMAL IDEA EXCHANGE SESSIONS	1.95
I116	CONTRIBUTE TO DISCUSSIONS IN MEETINGS	2.51
I117	DEFEND IDEAS, VIEWS, OR POSITIONS	2.82
I118	LISTEN TO UNDERST OTHERS POINTS OF VIEW	3.84
I119	LIS TO BFINGS ON WK GOALS/PRIOR/PROG/ETC	2.91
I120	REC DIRECTIONS/INSTRUCTIONS/ASSIGNMENTS	3.57
I121	LIS TO TECH/COMPLICATED INFORMATION	2.71
I122	DISCUSS WK SIT/PROBS/CONTINGENCIES	3.32
I123	REC INDIV/SM-GP INFORM INSTRUC/TRAINING	2.26
I124	ATTEND TRAINING SESSIONS	2.22
I125	ATT MEETINGS/CONF/SEMIN NOT CONN W/IRNG	1.76
I126	PROVIDE FEEDBACK TO SUPERIORS	3.49
I127	ACCOUNT TO OTHERS FOR DECISIONS/ACTIONS	3.17
I128	PROVIDE INFO TO SUPERIORS ON REQUEST	3.71
I129	WRITE TECHNICAL OR STATUS REPORTS	2.04
I130	MAKE TELEPHONE CALLS FOR SUPERIORS	2.00
I131	PLAN AND ORGANIZE PROGRAMS OR ACTIVITIES	1.99
I132	PLAN FOR ALLOC & DISTRIB OF MATERIALS	1.57

VARIABLE	STANDARD DEVIATION	N
I111	1.22	587
I112	1.26	589
I113	1.84	586
I114	2.16	583
I115	1.55	590
I116	1.42	589
I117	1.53	586
I118	1.60	586
I119	1.56	587
I120	1.57	587
I121	1.73	585
I122	1.52	586
I123	1.26	586
I124	1.05	584
I125	1.16	589
I126	1.40	587
I127	1.62	589
I128	1.40	588
I129	1.51	588
I130	1.61	587
I131	1.56	586
I132	1.43	588

VARIABLE	LABEL	MEAN	STANDARD DEVIATION	N
I133	PLAN FOR ALLOC OF PERSONNEL TO VAR PROGS	1.39	1.47	585
I134	COORDINATE AND SCHEDULE WORK ACTIVITIES	2.36	1.76	588
I135	NEGOTIATE EXCHANGE OF DUTIES	0.61	0.91	588
I136	ADV OTHERS ON JOB/CAREER/PROF MATTERS	2.17	1.63	590
I137	ADVISE OTHERS ON PERSONAL MATTERS	2.17	1.46	583
I138	ADV/ASSIST IN RESOLVING LEG/PROCED PROBS	1.51	1.52	589
I139	PROVIDE REFERRAL ASSISTANCE	1.99	1.66	589
I140	HELP OTHERS PREP FORMS/WT LTRS/MAKE REQS	2.37	1.57	586
I141	PROVIDE SYMPATHY OR REASSURANCE	2.29	1.56	586
I142	CALM AND PACIFY OTHERS	2.35	1.66	589
I143	CONDUCT FORMAL TRAINING SESSIONS	1.75	1.27	589
I144	PROVIDE INFORMAL, ON-THE-JOB TRAINING	2.69	1.61	593
I145	DEMONSTRATE TECHNIQUES AND PROCEDURES	2.56	1.55	591
I146	COORD & SCHED TRNG PROGS/ACTIVITIES	1.61	1.46	591
I147	RESOLVE COMPLAINTS	2.46	1.65	592
I148	RESOLVE CONFLICTS ABOUT WORK ASSIGNMENTS	1.94	1.48	592
I149	RESOLVE CONFLICTS RE EQUIP/SUPPLIES	1.56	1.36	591
I150	RESOLVE ARGUMENTS BETWEEN PEOPLE	1.74	1.40	591
I151	HANDLE PEOPLE IN DANG/HILY STRESSFUL SIT	1.46	1.75	590
I152	HANDLE PEOPLE WHO ARE HURT/ILL/IN PAIN	0.74	1.19	591
I153	HAND PEOP WHO ARE IRRAT/DISTURB/ON DRUGS	0.79	1.18	589
I154	CONTROL OTHERS PHYSICALLY	0.45	0.97	589

VARIABLE	LABEL	MEAN
I155	ASSESS PROBS/EMERGENCIES/CRISIS SITS	1.56
I156	PARTICIPATE IN SEARCH & RESCUE OPERATION	0.39
I157	CONDUCT SEARCH AND RESCUE OPERATIONS	0.25
I158	MANAGE EMERGENCY SITUATIONS OR CRISES	0.66
I159	GIVE DIRECTIONS/INSTRUCTIONS/ORDERS	3.36
I160	CONDUCT DRILLS	1.00
I161	LEAD A SPECIAL DETAIL OR WORK PARTY	1.03
I162	DIRECT LOADING/MOVEMENTS OF PERSONNEL	0.80
I163	ESTABLISH GOALS	2.60
I164	CLARIFY GOALS AND TASKS FOR OTHERS	2.36
I165	ASSIGN PRIORITIES TO TASKS	2.06
I166	ASSIGN TASKS TO PEOPLE	2.80
I167	BRIEF SUBS ON WK GOALS/PRIOR/PROG/ETC	2.53
I168	COND FORMAL IDEA EXCHANGE SESS W/SUBS	1.99
I169	PROVIDE FEEDBACK TO SUBORDINATES	2.54
I170	EVALUATE THE PERFORMANCE OF SUBORDINATES	2.06
I171	WRITE PERFORMANCE REPORTS ON PERSONNEL	1.30
I172	GIVE PATS ON BACK/OTHER INFORM REWARDS	2.52
I173	FORMALLY REWARD OR COMMEND OTHERS	1.32
I174	ENCOURAGE AND INSPIRE EFFORTS OF OTHERS	2.69
I175	ENCOURAGE RE-ENLISTMENT	2.04
I176	CONDUCT MEETINGS	1.63

VARIABLE	STANDARD DEVIATION	N
I155	1.44	588
I156	0.87	589
I157	0.72	587
I158	1.24	585
I159	2.03	582
I160	1.24	587
I161	1.14	588
I162	1.25	584
I163	1.45	581
I164	1.54	589
I165	1.65	586
I166	1.77	589
I167	1.62	586
I168	1.43	588
I169	1.54	584
I170	1.64	580
I171	1.21	584
I172	1.52	581
I173	1.28	584
I174	1.55	586
I175	1.61	583
I176	1.37	584

VARIABLE	LABEL	MEAN
I177	MAKE PRESENTATIONS OR GIVE BRIEFINGS	1.61
I178	GIVE INTERV FOR RADIO/TV/NEWSPAPERS	0.33
I179	ANS BRIEF QUES RE TECH/OPER STATUS	1.81
I180	REP ON DANG/EMERGENCY/CRISIS SITUATIONS	1.00
I181	INTERP/REP ON STATUS/PLOTTING-BOARD INFO	1.05
I182	PROV INFO ON POLICIES/PROCEDURES/REGS	2.27
I183	TRANSMIT MESSAGES	1.32
I184	COMMUNICATE POLICIES TO OTHERS	2.55
I185	ARRANGE COMPETITIONS BETWEEN UNITS	0.56
I186	TRADE CHITS TO GET A JOB DONE	0.65
I187	ARR FOR WATCH CREW/DIV TO GET SPEC PERKS	0.71
I188	ARR RAPID PROC OF CREW LV/TRANS/ADM REQS	1.29
I189	WK DEALS TO MAKE WORK EASIER OR FASTER	1.64
I190	WK DEALS TO MAKE LIV/WKING CONDS BETTER	1.59
I191	MI CONT W/SUPS TO EXPED DUTY ASSIGN MATT	2.36
I192	PERS HI-RANKS TOWARD ACTION/OPIN/POSIT	2.27
I193	MI CONT W/PEERS TO EXPED DUTY ASSIGN MAT	2.43
I194	PERS SAME RANK OF ACTION/OPINION/POSIT	2.25
I195	MI CONT W/LO-RK TO EXPED DUTY ASSIGN MAT	2.44
I196	PERS LO-RK TOWARD ACTION/OPINION/POSIT	2.52
I197	EVAL PROGRAMS & RECOMMEND IMPROVEMENTS	1.92
I198	MONITOR COMBAT READINESS	0.69

VARIABLE	STANDARD DEVIATION	N
I177	1.31	583
I178	0.79	582
I179	1.69	581
I180	1.22	581
I181	1.59	580
I182	1.64	583
I183	1.67	587
I184	1.62	591
I185	0.83	586
I186	0.99	587
I187	1.02	589
I188	1.36	586
I189	1.39	587
I190	1.31	588
I191	1.56	586
I192	1.46	588
I193	1.56	589
I194	1.36	585
I195	1.64	588
I196	1.66	585
I197	1.39	588
I198	1.44	589

VARIABLE	LABEL	MEAN
I199	MONITOR STAFF FUNCTIONS	1.03
I200	MONITOR EXPENSES	1.14
I201	MONITOR WORK PERFORMANCE AND STANDARDS	2.41
I202	MON COMPL W/SECURITY & SAFETY PROCEDURES	2.45
I203	LISTEN TO COMPLAINTS AND REQUESTS	3.11
I204	APPROVE OR REJECT REQUESTS/PROPOSALS	2.10
I205	STAND OPER/SECURITY/OTHER WATCHES	1.89
I206	ACT AS PHONE TALKER	1.06
I207	ACT AS HELMSMAN/PLANESMAN	0.12
I208	PARTICIPATE IN REPAIR PARTY	0.47
I209	PARTICIPATE IN FIRST AID TEAM	0.40
I210	PARTICIPATE IN FIRE PARTY	0.51

APPENDIX D

DESCRIPTIVE STATISTICS FOR SCALES

VARIABLE	LABEL	MEAN
MISCTASK	MISCELLANEOUS TASKS	2.10
PHYSREQ	PHYSICAL REQUIREMENTS	2.05
TOOLEQIP	TOOLS AND EQUIPMENT	1.65
WORKENV	WORK ENVIRONMENT	2.46
ADVISE	ADVISING	2.13
DEVELOP	DEVELOPING OTHERS	2.33
DIRECT	DIRECTING	1.75
DEVSELF	DEVELOPING SELF	2.25
GATHINF	GATHERING INFORMATION	1.37
GIVEINF	GIVING INFORMATION	1.52
HANDROUT	HANDLING ROUTINE SITUATIONS	1.50
INFLUENZ	INFLUENCING	2.05
INFORM	INFORMING	2.40
MONITOR	MONITORING	1.89
PLANORG	PLANNING AND ORGANIZING	1.75
RESPCOOP	RESPONDING AND COOPERATING	2.73
SANCTION	SANCTIONING	1.92
SECURITY	SECURITY	1.64
SERVOTH	SERVING OTHERS	1.76
SUPERVIZ	SUPERVISING	2.39
CONFLICT	CONFLICT	1.93
CRISIS	CRISIS	0.61

VARIABLE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
MISCTASK	0.90	0.24	7.00
PHYSREQ	1.06	0.19	7.00
TOOLEQIP	0.91	0.00	7.00
WORKENV	1.05	0.27	7.50
ADVISE	1.21	0.00	6.43
DEVELOP	1.21	0.00	7.00
DIRECT	0.99	0.00	6.60
DEVSELF	1.07	0.00	7.00
GATHINF	0.67	0.00	6.11
GIVEINF	0.97	0.00	7.00
HANDROUT	0.93	0.00	7.00
INFLUENZ	1.07	0.00	5.50
INFORM	1.17	0.00	6.75
MONITOR	1.14	0.00	6.13
PLANORG	1.13	0.00	6.67
RESPCOOP	0.86	0.00	6.73
SANCTION	1.24	0.00	7.00
SECURITY	1.16	0.00	7.00
SERVOTH	1.01	0.00	7.00
SUPERVIZ	1.33	0.00	7.00
CONFLICT	1.27	0.00	7.00
CRISIS	0.89	0.00	6.88

VARIABLE	LABEL	MEAN
ONEOTH	INTERACT WITH ONE OTHER	1.66
TWOOTH	INTERACT WITH TWO OTHERS	2.65
MOREOTH	INTERACT WITH GROUP	1.74
INITIAT	INITIATES ACTIVITY OR TASK	1.84
RECIPNT	RECIPIENT OF OTHERS ACTIONS	2.37
INFERIOR	INFERIOR POWER POSITION	2.80
EQUAL	PEER OR EQUAL POWER POSITION	1.77
SUPERIOR	SUPERIOR POWER POSTION	1.72
RECEIVE	RECEIVES INFORMATION	1.74
BOTH	BOTH SENDS AND RECEIVES INFORMATION	1.52
SEND	SENDS INFORMATION	2.25
DEPEND	DEPENDENT--CANT PROCEED WITHOUT OTHERS	1.96
INTERDEP	INTERDEPENDENT--INTERACTS W OTHERS	1.74
INDEP	INDEPENDENT--PROCEEDS ON OWN VOLITION	2.13
ALONE	WORKS ALONE	1.90
SOMETEAM	TEAMWORK HELPFUL BUT NOT ESSENTIAL	1.63
TEAM	TEAMWORK REQUIRED	1.06

VARIABLE	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE
ONEOTH	0.69	0.28	4.83
TWOOTH	1.10	0.00	7.00
MOREOTH	0.83	0.00	5.60
INITIAT	0.91	0.00	5.45
RECIPNT	0.67	0.20	7.00
INFERIOR	0.91	0.11	6.33
EQUAL	1.09	0.00	5.00
SUPERIOR	0.93	0.[illegible]3	5.93
RECEIVE	0.81	0.00	5.37
BOTH	0.74	0.00	5.09
SEND	0.95	0.19	7.00
DEPEND	0.75	0.00	5.54
INTERDEP	0.79	0.10	5.35
INDEP	1.13	0.00	6.14
ALONE	0.82	0.16	5.09
SOMETEAM	0.64	0.00	6.06
TEAM	0.78	0.00	6.50

APPENDIX E

INTERCORRELATIONS FOR SCALES

APPENDIX E: INTERCORRELATIONS FOR SCALES

CORRELATION COEFFICIENTS / N = 594

	MISCTASK	PHYSREQ	TOOLEQIP	WORKENV	ADVISE	DEVELOP
MISCTASK	1.00000	0.77410	0.91316	0.64747	0.17315	0.39909
PHYSREQ	0.77410	1.00000	0.71073	0.71873	0.22547	0.38293
TOOLEQIP	0.91316	0.71073	1.00000	0.55419	0.10596	0.29864
WORKENV	0.64747	0.71873	0.55419	1.00000	0.15442	0.27192
ADVISE	0.17315	0.22547	0.10598	0.15442	1.00000	0.47357
DEVELOP	0.39909	0.38293	0.29864	0.27192	0.47357	1.00000
DIRECT	0.44817	0.45089	0.37134	0.35699	0.54063	0.62673
DEVSELF	0.33420	0.28608	0.26967	0.25664	0.26989	0.40178
GAININF	0.28416	0.27535	0.18256	0.13653	0.69808	0.53896
GIVEINF	0.50434	0.46483	0.43761	0.30128	0.53809	0.55036
HANDFOOT	0.48243	0.38539	0.34470	0.31692	0.45911	0.35186
INFLUENZ	0.37560	0.37542	0.31610	0.23974	0.44488	0.44396
INFORM	0.25102	0.26167	0.20092	0.22937	0.59973	0.48061
MONITOR	0.35261	0.34419	0.24970	0.26495	0.54577	0.56542
PLANORG	0.28419	0.27690	0.20576	0.21015	0.59396	0.64204
RESPCOOP	0.50002	0.45721	0.37766	0.37812	0.48591	0.40626
SANCTION	0.22183	0.23075	0.14848	0.17727	0.51427	0.52451
SECURITY	0.35270	0.35284	0.27951	0.24156	0.43621	0.41253
SERVCTR	0.32071	0.34566	0.23918	0.25569	0.45852	0.26299
SUPERVIZ	0.31394	0.27595	0.23421	0.21253	0.55294	0.66976
CONFLICT	0.35616	0.37648	0.23595	0.34081	0.60554	0.62312
CRISIS	0.37505	0.45939	0.28738	0.38873	0.53127	0.44836

APPENDIX E: INTERCORRELATIONS FOR SCALES

CORRELATION COEFFICIENTS / N = 594

	MISCTASK	PHYSREQ	TOOLEQIP	WORKENV	ADVISE	DEVELOP
ONEOTH	0.47436	0.47195	0.36308	0.35719	0.77975	0.59820
TWOOTH	0.39270	0.37108	0.27507	0.30375	0.60265	0.66529
MOREOTH	0.37220	0.36776	0.29360	0.22917	0.63405	0.69216
INITIAT	0.36562	0.36564	0.27226	0.25801	0.69247	0.76500
RECIPNT	0.43202	0.41475	0.32990	0.29210	0.79002	0.56392
INFERIOR	0.46097	0.42357	0.37347	0.33367	0.49652	0.51376
EQUAL	0.32311	0.29391	0.28692	0.14667	0.41690	0.36149
SUPERIOR	0.38898	0.39646	0.28335	0.30199	0.67464	0.74532
RECEIVE	0.40763	0.41064	0.29867	0.28469	0.67364	0.64519
BOTH	0.43596	0.44263	0.32258	0.31551	0.71790	0.62020
SEND	0.44919	0.43319	0.35333	0.32106	0.75414	0.72794
DEPEND	0.42282	0.40737	0.32519	0.26637	0.64366	0.53576
INTERDEP	0.45964	0.46542	0.35160	0.34506	0.79505	0.66257
INDEP	0.36959	0.35150	0.27772	0.25678	0.57575	0.69073
ALONE	0.45720	0.45743	0.34781	0.32365	0.79920	0.70694
SOMETEAM	0.40010	0.42465	0.29945	0.33282	0.65025	0.66603
TEAM	0.31247	0.33261	0.24794	0.16831	0.44679	0.44105
	DIRECT	DEVSELF	GATHINF	GIVEINF	HANDOUT	INFLUEN2
MISCTASK	0.44817	0.33420	0.26416	0.50434	0.48243	0.37560
PHYSREQ	0.45089	0.28608	0.27535	0.46483	0.38539	0.37542
TOOLEQIP	0.37134	0.26967	0.18238	0.43761	0.34470	0.31610
WORKENV	0.35699	0.25664	0.13653	0.30128	0.31692	0.23974

CORRELATION COEFFICIENTS / N = 594

	DIRECT	DEVSELF	GATHINF	GIVEINF	HANDOUT	INFLUENZ
ADVISE	0.54063	0.26989	0.69808	0.53609	0.45911	0.44466
DEVELOP	0.62673	0.40178	0.53896	0.55036	0.35166	0.44396
DIRECT	1.00000	0.35214	0.55883	0.60357	0.39899	0.47393
DEVSELF	0.35214	1.00000	0.29608	0.26591	0.31236	0.32249
GATHINF	0.55883	0.29608	1.00000	0.65434	0.44558	0.58628
GIVEINF	0.60357	0.26591	0.65434	1.00000	0.43356	0.61618
HANDOUT	0.39899	0.31236	0.44558	0.43356	1.00000	0.31918
INFLUENZ	0.47393	0.32249	0.58628	0.61618	0.31918	1.00000
INFORM	0.57706	0.26389	0.58621	0.57579	0.37005	0.50249
MONITOR	0.70643	0.23630	0.64574	0.65585	0.44644	0.52455
PLANORG	0.66601	0.27200	0.66674	0.61751	0.44950	0.50606
RESPCOOP	0.46761	0.44827	0.47302	0.46251	0.45590	0.54766
SANCTION	0.60576	0.27039	0.52517	0.50072	0.33361	0.38799
SECURITY	0.53590	0.13618	0.56787	0.53495	0.31624	0.37612
SERVOTH	0.35636	0.27765	0.40577	0.34063	0.57030	0.26747
SUPERVIZ	0.75951	0.30394	0.60324	0.59903	0.37435	0.46491
CONFLICT	0.69554	0.27694	0.61960	0.58225	0.47982	0.46443
CRISIS	0.63769	0.26527	0.55473	0.59970	0.43179	0.45346
ONEOTH	0.64464	0.41577	0.77061	0.73316	0.69735	0.62947
TWOOTH	0.75243	0.48521	0.64440	0.63909	0.43961	0.58635
MOREOTH	0.71327	0.50079	0.78131	0.78133	0.47964	0.69651
INITIAT	0.81445	0.35889	0.80349	0.72194	0.48325	0.59824

CORRELATION COEFFICIENTS / N = 594

	DIRECT	DEVSELF	GATHINF	GIVEINF	HANDLOUT	INFLUENZ
RECIPNT	0.56197	0.51763	0.72286	0.72508	0.58342	0.64270
INFERIOR	0.51602	0.58196	0.54515	0.61629	0.41542	0.59623
EQUAL	0.38661	0.25022	0.54603	0.58323	0.27810	0.91675
SUPERIOR	0.63558	0.33715	0.77693	0.73042	0.49912	0.59272
RECEIVE	0.71631	0.46143	0.87476	0.72708	0.49942	0.64692
BOTH	0.69298	0.36275	0.75968	0.73800	0.63819	0.72996
SEND	0.78769	0.35035	0.76236	0.82710	0.52402	0.61905
DEPEND	0.57406	0.58665	0.71466	0.62357	0.60000	0.59140
INTERDEP	0.74133	0.37511	0.63601	0.82732	0.59831	0.70113
INDEP	0.62365	0.29483	0.66814	0.69262	0.41112	0.54172
ALONE	0.76756	0.37205	0.61591	0.82901	0.60668	0.64223
SOMETEAM	0.77964	0.38147	0.75364	0.70330	0.52067	0.66195
TEAM	0.52730	0.35767	0.63352	0.54814	0.33747	0.45006

	INFORM	MONITOR	PLANORG	RESPCOOP	SANCTION	SECURITY
MISCTASK	0.25102	0.35261	0.28419	0.50002	0.22183	0.35270
PHYSENV	0.28167	0.34419	0.27690	0.45721	0.23075	0.35264
TOOLEQIP	0.20092	0.24970	0.20576	0.37766	0.14648	0.27951
WORKENV	0.22937	0.26495	0.21015	0.37812	0.17727	0.24156
ADVISE	0.59973	0.54577	0.59396	0.48591	0.51427	0.43621
DEVELOP	0.48061	0.58542	0.64204	0.40826	0.52451	0.41253
DIRECT	0.57706	0.70643	0.68601	0.46761	0.60576	0.53590
DEVSELF	0.26369	0.23630	0.27200	0.44827	0.27039	0.13618

APPENDIX E: INTERCORRELATIONS FOR SCALES

CORRELATION COEFFICIENTS / N = 594

	INFORM	MONITOR	PLANORG	RESPCOOP	SANCTION	SECURITY
GATHINF	0.56621	0.64574	0.66674	0.47302	0.52517	0.56767
GIVEINF	0.57579	0.65585	0.61751	0.48251	0.50072	0.53495
HANDHOUT	0.37005	0.44844	0.44950	0.45590	0.33361	0.31624
INFLUENZ	0.50249	0.52455	0.50606	0.54766	0.38799	0.37812
INFORM	1.00000	0.65664	0.61523	0.51607	0.62108	0.46590
MONITOR	0.65664	1.00000	0.73453	0.44442	0.61896	0.54932
PLANORG	0.61523	0.73453	1.00000	0.46632	0.64136	0.50374
RESPCOOP	0.51607	0.44442	0.46632	1.00000	0.42330	0.42596
SANCTION	0.62108	0.61896	0.64136	0.42330	1.00000	0.45118
SECURITY	0.46590	0.54932	0.50374	0.42596	0.45118	1.00000
SERVOTH	0.34755	0.33907	0.37957	0.44594	0.31003	0.35964
SUPERVIZ	0.63689	0.74251	0.76303	0.43724	0.71099	0.47434
CONFLICT	0.59528	0.71733	0.71256	0.52160	0.61607	0.53101
CRISIS	0.48433	0.58470	0.52167	0.44555	0.42910	0.50431
ONEOTH	0.67092	0.67315	0.69860	0.70859	0.60651	0.57040
TWOOTH	0.56443	0.74140	0.77904	0.67356	0.67750	0.53110
MOREOTH	0.65230	0.72290	0.74791	0.56126	0.61194	0.52401
INITIAT	0.76218	0.83243	0.87461	0.54577	0.74690	0.60702
RECIPNT	0.63734	0.58760	0.62307	0.76462	0.54841	0.48609
INFERIOR	0.55279	0.51234	0.54409	0.90623	0.46497	0.45814
EQUAL	0.44856	0.46113	0.46050	0.43273	0.33153	0.33977
SUPERIOR	0.71366	0.88417	0.86765	0.52613	0.73358	0.65057

CORRELATION COEFFICIENTS / N = 594

	INFOEX	MONITOR	PLANORG	RESPCOOP	SANCTION	SECURITY
RECEIVE	0.68132	0.85988	0.75673	0.62072	0.62174	0.63743
BOTH	0.65978	0.72234	0.77826	0.66412	0.60720	0.56507
SEND	0.75471	0.78414	0.80996	0.61254	0.70610	0.63451
DEPEND	0.59272	0.54100	0.60379	0.76121	0.52153	0.48872
INTERDEP	0.73626	0.78085	0.79109	0.65149	0.64937	0.63661
INDEP	0.67189	0.90755	0.81638	0.46646	0.71522	0.56335
ALONE	0.71916	0.79933	0.79768	0.63480	0.67440	0.65501
SOMETEAM	0.65087	0.77647	0.79011	0.59655	0.64616	0.61105
TEAM	0.41559	0.47446	0.48549	0.43238	0.42810	0.39746
	SERVOTH	SUPERVIZ	CONFLICT	CRISIS	ONEOTH	TWOOTH
MISCTASK	0.32071	0.31394	0.35616	0.37505	0.47436	0.39270
PHYSREQ	0.34566	0.27595	0.37648	0.45939	0.47195	0.37106
TOOLREQ	0.23918	0.23421	0.23595	0.26738	0.36308	0.27507
WORKENV	0.25569	0.21253	0.34081	0.38873	0.35715	0.30375
ADVISE	0.45852	0.55294	0.60554	0.53127	0.77975	0.60265
DEVELOP	0.26299	0.66376	0.62312	0.44838	0.59620	0.66529
DIRECT	0.35638	0.75951	0.69554	0.63769	0.64484	0.75243
DEVSELF	0.27785	0.30394	0.27694	0.26527	0.41577	0.48521
GATHINF	0.40577	0.60324	0.61960	0.55473	0.77081	0.64440
GIVEINF	0.34063	0.59903	0.58225	0.59970	0.73316	0.63909
HANDOUT	0.57030	0.37435	0.47982	0.43179	0.69735	0.43981
INFLUENZ	0.28747	0.48491	0.46443	0.45346	0.62947	0.56835

CORRELATION COEFFICIENTS / N = 594

	SERVOTH	SUPERVIZ	CONFLICT	CRISIS	ONEOTH	TWOOTH
INFORM	0.34755	0.63689	0.59528	0.48433	0.67092	0.66443
MONITOR	0.33907	0.74251	0.71733	0.58470	0.67315	0.74140
PLANORG	0.37957	0.76303	0.71256	0.52167	0.69680	0.77904
RESPCOOP	0.44594	0.43724	0.52160	0.44555	0.70859	0.67356
SANCTION	0.31003	0.71099	0.61607	0.42910	0.60651	0.67750
SECURITY	0.35964	0.47434	0.53181	0.50431	0.57040	0.53116
SERVOTH	1.00000	0.26661	0.40530	0.40452	0.66568	0.35793
SUPERVIZ	0.26661	1.00000	0.71258	0.49233	0.66505	0.67582
CONFLICT	0.40530	0.71258	1.00000	0.60707	0.70012	0.79423
CRISIS	0.40452	0.49233	0.60707	1.00000	0.65274	0.54476
ONEOTH	0.66568	0.66505	0.70012	0.65274	1.00000	0.74924
TWOOTH	0.35793	0.67582	0.79423	0.54476	0.74924	1.00000
MOREOTH	0.40047	0.71552	0.67689	0.62721	0.77329	0.77647
INITIAT	0.39365	0.88232	0.78275	0.63503	0.81654	0.87369
RECIPNT	0.54442	0.59703	0.65411	0.54522	0.89679	0.76167
INFERIOR	0.39947	0.52314	0.55166	0.46763	0.73210	0.74075
EQUAL	0.25564	0.42154	0.39143	0.39278	0.57465	0.49074
SUPERIOR	0.41946	0.67241	0.81987	0.71549	0.80795	0.86553
RECEIVE	0.42891	0.72685	0.72682	0.66637	0.82201	0.79915
BOTH	0.62679	0.68372	0.76162	0.73245	0.91543	0.78574
SEND	0.44709	0.83753	0.76386	0.62077	0.87035	0.86123
DEPEND	0.56531	0.54049	0.59300	0.54116	0.86171	0.70610

CORRELATION COEFFICIENTS / N = 594

	SERVOTH	SUPERVIZ	CONFLICT	CRISIS	ONEOTH	TWOOTH
INTERDEP	0.56372	0.74137	0.77369	0.72696	0.93121	0.82137
INDEP	0.31659	0.92084	0.75655	0.56637	0.70622	0.65653
ALONE	0.56472	0.76962	0.76705	0.66284	0.93116	0.82592
SOMETEAM	0.46736	0.80507	0.77691	0.79915	0.82277	0.84839
TEAM	0.31869	0.45040	0.48624	0.63705	0.56794	0.50036
	MOREOTH	INITIAT	RECIPNT	INFERIOR	EQUAL	SUPERIOR
MISCTASK	0.37220	0.36562	0.43202	0.48097	0.32311	0.36898
PHYSREQ	0.36776	0.36564	0.41475	0.42357	0.29391	0.39646
TOOLEQIP	0.29380	0.27226	0.32990	0.37347	0.26692	0.26335
WORKENV	0.22917	0.25801	0.29210	0.33387	0.14667	0.30199
ADVISE	0.63405	0.69247	0.79002	0.49852	0.41690	0.67464
DEVELOP	0.69216	0.76500	0.56392	0.51376	0.36149	0.74332
DIRECT	0.71327	0.81445	0.58197	0.51602	0.36881	0.83556
DEVSELF	0.50079	0.35889	0.51763	0.58196	0.25022	0.33715
GATHINF	0.76131	0.80349	0.72286	0.54515	0.54603	0.77895
GIVEINF	0.75133	0.72194	0.72508	0.61829	0.56323	0.73042
HANDROCI	0.47964	0.46325	0.58342	0.41542	0.27810	0.49912
INFLUENZ	0.69651	0.59824	0.64270	0.59623	0.91675	0.59272
INFORM	0.65236	0.76216	0.63734	0.55279	0.44656	0.71366
MONITOR	0.72290	0.83243	0.58760	0.51234	0.46113	0.68417
PLANORG	0.74791	0.87461	0.62307	0.54409	0.46050	0.86785
RESPCOOP	0.58126	0.54577	0.76462	0.90623	0.43273	0.52613

APPENDIX E: INTERCORRELATIONS FOR SCALES

CORRELATION COEFFICIENTS / N = 594

	MOREOTH	INITIAT	RECIPNT	INFERIOR	EQUAL	SUPERIOR
SANCTION	0.61194	0.74690	0.54641	0.46497	0.33153	0.73358
SECURITY	0.52401	0.60762	0.48809	0.45614	0.33977	0.65057
SERVOTH	0.40047	0.39365	0.54442	0.39947	0.25564	0.41946
SUPERVIZ	0.71552	0.88232	0.59703	0.52314	0.42154	0.87241
CONFLICT	0.67669	0.78275	0.65411	0.55166	0.39143	0.81987
CRISIS	0.62721	0.63503	0.54522	0.46783	0.39276	0.71549
ONEOTH	0.77329	0.81654	0.89679	0.73210	0.57485	0.80795
TWOOTH	0.77847	0.87369	0.76167	0.74075	0.49074	0.86555
MOREOTH	1.00000	0.86497	0.78707	0.69706	0.61922	0.85935
INITIAT	0.86497	1.00000	0.73026	0.63765	0.52762	0.97666
RECIPNT	0.78707	0.73028	1.00000	0.81286	0.57806	0.70895
INFERIOR	0.69706	0.63765	0.81286	1.00000	0.49227	0.60752
EQUAL	0.61922	0.52762	0.57806	0.49227	1.00000	0.52260
SUPERIOR	0.85935	0.97666	0.70895	0.60752	0.52260	1.00000
RECEIVE	0.86666	0.89590	0.77918	0.71044	0.56985	0.90935
BOTH	0.84753	0.84804	0.82129	0.69267	0.67832	0.86403
SEND	0.84115	0.92764	0.85551	0.69970	0.55573	0.91519
DEFEND	0.76580	0.72283	0.86559	0.83760	0.51783	0.88660
INTERDEP	0.86817	0.90533	0.88398	0.71270	0.63792	0.90896
INDEP	0.77929	0.92690	0.82521	0.55835	0.47530	0.94760
ALONE	0.86653	0.91819	0.87625	0.71151	0.57515	0.91763
SOMEBEAM	0.84479	0.89404	0.73667	0.64437	0.61425	0.92776

APPENDIX E: INTERCORRELATIONS FOR SCALES

CORRELATION COEFFICIENTS / N = 594

	MOREOTH	INITIAT	RECIPNT	INFERIOR	EQUAL	SUPERIOR
TEAM	0.70463	0.56711	0.57376	0.48669	0.39695	0.60391
	RECEIVE	BOTH	SEND	DEPEND	INTERDEP	INDEP
MISCTASK	0.40763	0.43596	0.44919	0.42262	0.45984	0.36959
PHYSREQ	0.41064	0.44263	0.43319	0.40737	0.46542	0.35150
TOOLEQIP	0.29867	0.32238	0.35333	0.32519	0.35160	0.27772
WORKENV	0.28469	0.31551	0.32108	0.26637	0.34506	0.25678
ADVISE	0.67364	0.71790	0.75414	0.64368	0.79505	0.57575
DEVELOP	0.64519	0.62020	0.72794	0.53576	0.68257	0.69073
DIRECT	0.71631	0.69296	0.78769	0.57406	0.74133	0.62365
DEVSELF	0.46143	0.38275	0.35035	0.58665	0.37511	0.29483
GAINING	0.67476	0.75968	0.76236	0.71486	0.83601	0.66614
GIVEING	0.72708	0.73800	0.62710	0.62357	0.62732	0.69262
HANDRCOT	0.49942	0.63819	0.52402	0.60000	0.59831	0.41112
INFLUENC	0.64692	0.72396	0.61905	0.59140	0.70113	0.54172
INFORM	0.68132	0.65978	0.75471	0.59272	0.73028	0.67189
MONITOR	0.65966	0.72234	0.76414	0.54100	0.78065	0.60755
PLANORG	0.75673	0.77628	0.80996	0.60379	0.79109	0.61636
RESPCOOR	0.62072	0.66412	0.61254	0.78121	0.65145	0.46646
SANCTION	0.62174	0.60720	0.70610	0.52153	0.64937	0.71522
SECURITY	0.63743	0.56507	0.63451	0.48872	0.63661	0.56335
SERVOTH	0.42691	0.62679	0.44709	0.56531	0.56372	0.31859
SUPERVIZ	0.72685	0.68372	0.83753	0.54049	0.74137	0.92084

APPENDIX E: INTERCORRELATIONS FOR SCALES

CORRELATION COEFFICIENTS / N = 594

	RECEIVE	BOTH	SEND	DEPEND	INTERDEP	INDEP
CONFLICT	0.72682	0.76162	0.76368	0.59300	0.77369	0.75655
CRISIS	0.66637	0.73245	0.62077	0.54116	0.72698	0.58837
ONEOTH	0.82201	0.91543	0.87035	0.86171	0.93121	0.70622
TWOOTH	0.79915	0.78574	0.86123	0.70610	0.82137	0.85853
MOREOTH	0.86686	0.84753	0.84115	0.78580	0.86617	0.77929
INITIAT	0.89590	0.84804	0.92764	0.72283	0.90533	0.92690
RECIPNT	0.77918	0.82129	0.85551	0.86559	0.88398	0.62521
INFERIOR	0.71044	0.69267	0.69970	0.83760	0.71270	0.55835
EQUAL	0.56985	0.67832	0.55573	0.51783	0.63792	0.47530
SUPERIOR	0.90935	0.86403	0.91519	0.68660	0.90898	0.94760
RECEIVE	1.00000	0.83827	0.84850	0.76510	0.89721	0.85227
BOTH	0.83827	1.00000	0.83740	0.81671	0.93792	0.74874
SEND	0.84850	0.83740	1.00000	0.73436	0.94806	0.87661
DEPEND	0.76510	0.81671	0.73436	1.00000	0.79059	0.57296
INTERDEP	0.89721	0.93792	0.94806	0.79059	1.00000	0.81092
INDEP	0.85227	0.74874	0.87661	0.57296	0.81092	1.00000
ALONE	0.89029	0.90675	0.96422	0.81410	0.97529	0.84354
SOMETEAM	0.87165	0.89859	0.85726	0.70722	0.90302	0.84972
TEAM	0.65016	0.64465	0.56244	0.60987	0.63348	0.51326

	ALONE	SOMETEAM	TEAM
MISCTASK	0.45720	0.40010	0.31247
PHYSREQ	0.45743	0.42465	0.33261

CORRELATION COEFFICIENTS / N = 594

	ALONE	SOMETEAM	TEAM
TOOLEVIF	0.34761	0.29945	0.24794
WORKENV	0.32365	0.33282	0.18831
ADVISE	0.79920	0.65025	0.44679
DEVELOP	0.70694	0.66803	0.44105
DIRECT	0.76756	0.77964	0.52730
DEVSELF	0.37205	0.38147	0.35767
GATHINF	0.81591	0.75364	0.63352
GIVEINF	0.82901	0.70330	0.54814
HANDOUT	0.60666	0.52067	0.33747
INFLUENC	0.64223	0.68195	0.45008
INFORM	0.71916	0.65067	0.41559
MONITOR	0.79933	0.77647	0.47446
PLANORG	0.79786	0.79011	0.48549
RESPCOOP	0.63460	0.59655	0.43238
SANCTION	0.67440	0.64616	0.42810
SECURITY	0.65501	0.61105	0.39746
SERVOTH	0.56472	0.46736	0.31869
SUPERVIZ	0.76962	0.60507	0.45040
CONFLICT	0.76705	0.77691	0.48624
CRISIS	0.66264	0.79915	0.63705
ONEOTH	0.93116	0.82277	0.56794
TWOOTH	0.82592	0.84839	0.50038

CORRELATION COEFFICIENTS / N = 594

	ALONE	SOMETEAM	TEAM
MOREOTH	0.86653	0.84479	0.70463
INITIAT	0.91619	0.89404	0.58711
RECIPNT	0.87625	0.73687	0.57376
INFERIOR	0.71151	0.64437	0.48669
EQUAL	0.57515	0.61425	0.39695
SUPERIOR	0.91763	0.92776	0.60391
RECEIVE	0.89029	0.87165	0.65016
BOTH	0.90675	0.89859	0.64465
SEND	0.96422	0.85726	0.56244
DEPEND	0.81410	0.70722	0.60987
INTERDEP	0.97529	0.90302	0.63348
INDEP	0.84354	0.84972	0.51326
ALONE	1.00000	0.86491	0.59612
SOMETEAM	0.86491	1.00000	0.61939
TEAM	0.59612	0.61939	1.00000

APPENDIX F

PREDICTING GRADE FROM SCALES

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

NOTE: 14 OBSERVATIONS DELETED DUE TO MISSING VALUES.

STEP 1 VARIABLE INDEP ENTERED R SQUARE = 0.24122761
C(P) = 319.36229392

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	1	319.13397061	319.13397061	120.17	0.0001
ERROR	378	1003.82392412	2.65561885		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.33082317				
INDEP	0.82110726	0.07490249	319.13397061	120.17	0.0001

STEP 2 VARIABLE RESPCOOP ENTERED R SQUARE = 0.31775974
C(P) = 251.22590190

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	2	420.38275677	210.19137839	87.80	0.0001
ERROR	377	902.57513796	2.39409851		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.68035294				
RESPCOOP	-0.70020532	0.10767168	101.24876616	42.29	0.0001
INDEP	1.07688500	0.08127015	420.35722068	175.56	0.0001

STEP 3 VARIABLE GATHINF ENTERED R SQUARE = 0.36669177
C(P) = 206.38309135

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	3	485.11776834	161.70592278	72.57	0.0001
ERROR	376	837.84012640	2.22829821		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.87291273				
GATHINF	0.64551301	0.11976283	64.73501157	29.05	0.0001

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

RESPCOOP	-0.66211043	0.10922143	145.34615367	65.23	0.0001
INDEP	0.79792455	0.09394732	160.74155721	72.14	0.0001

STEP 4 VARIABLE CRISIS ENTERED R SQUARE = 0.40361376
C(P) = 176.54662256

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	4	533.96404191	133.49101048	63.45	0.0001
ERROR	375	788.99385283	2.10398361		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.54778615				
GATHINF	0.82446920	0.12215724	95.64133048	45.55	0.0001
RESPCOOP	-0.80060270	0.10746415	116.83509524	55.53	0.0001
CRISIS	-0.52022050	0.10796747	46.84627357	23.22	0.0001
INDEP	0.93206318	0.09547726	200.77543662	95.43	0.0001

STEP 5 VARIABLE SUPERIOR ENTERED R SQUARE = 0.44162337
C(P) = 143.71347470

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	5	584.24911991	116.84982398	59.16	0.0001
ERROR	374	738.70877482	1.97515715		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.63666197				
GATHINF	0.37027921	0.14869951	12.24732524	6.20	0.0132
RESPCOOP	-0.67680963	0.10526373	137.68822995	69.70	0.0001
CRISIS	-0.90963773	0.12999901	96.70712430	48.96	0.0001
SUPERIOR	2.13877778	0.42386391	50.26507800	25.46	0.0001
INDEP	-0.30268122	0.26173022	2.64156663	1.34	0.2482

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 6 VARIABLE DEVSELF ENTERED R SQUARE = 0.47057224
C(P) = 119.16364306

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	6	622.54725479	103.75787580	55.26	0.0001
ERROR	373	700.41063995	1.87777651		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.85001503				
DEVSELF	-0.33948221	0.07517097	38.29813486	20.40	0.0001
GAINING	0.34781418	0.14507284	10.79359858	5.75	0.0170
RESPCOOP	-0.68659779	0.11094191	72.34089784	38.52	0.0001
CRISIS	-0.88734662	0.12684992	91.88615527	48.93	0.0001
SUPERIOR	2.20498790	0.41356246	53.37945044	28.43	0.0001
INDEP	-0.33021722	0.25526949	3.14226445	1.67	0.1966

STEP 7 VARIABLE MOREOTH ENTERED R SQUARE = 0.50503970
C(P) = 89.59679761

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	7	668.14626442	95.44946635	54.23	0.0001
ERROR	372	654.81163032	1.76024632		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.76097728				
DEVSELF	-0.52547670	0.08143967	73.26366650	41.63	0.0001
GAINING	0.14120727	0.14620760	1.64190373	0.93	0.3346
RESPCOOP	-0.72271652	0.10762285	79.37604712	45.09	0.0001
CRISIS	-0.92192130	0.12300373	98.88366707	56.18	0.0001
MOREOTH	1.04675152	0.20566132	45.59900963	25.90	0.0001
SUPERIOR	1.55279635	0.42041492	24.01296853	13.64	0.0003
INDEP	-0.23254981	0.24789557	1.54905672	0.88	0.3486

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 8 VARIABLE GIVEINF ENTERED R SQUARE = 0.52637734
C(P) = 72.04233194

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	6	696.37506059	67.04688257	51.54	0.0001
ERROR	371	626.58283415	1.68890252		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.74463573				
DEVSELF	-0.59275391	0.08145185	89.44406951	52.96	0.0001
GATHINF	0.20639543	0.14415386	3.52962346	2.09	0.1491
GIVEINF	-0.55404628	0.13551961	28.22879617	16.71	0.0001
RESPCOOP	-0.71633508	0.10543084	77.96535916	46.16	0.0001
CRISIS	-0.79198077	0.12460690	68.22596041	40.40	0.0001
MOREOTH	1.50959769	0.23106278	72.07619867	42.66	0.0001
SUPERIOR	1.26511122	0.41777577	15.48729270	9.17	0.0026
INDEP	-0.00700718	0.24900802	0.00133741	0.00	0.9776

STEP 9 VARIABLE HANDROUT ENTERED R SQUARE = 0.54662086
C(P) = 55.30724459

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	9	723.42100350	80.38011150	49.61	0.0001
ERROR	370	599.53689123	1.62036996		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.78022022				
DEVSELF	-0.55479793	0.08032125	77.30772516	47.71	0.0001
GATHINF	0.24041495	0.14141617	4.66315995	2.89	0.0900
GIVEINF	-0.58381598	0.13294142	31.24957634	19.29	0.0001
HANDROUT	-0.38789455	0.09494446	27.04594291	16.69	0.0001
RESPCOOP	-0.60689019	0.10668760	52.43322363	32.36	0.0001
CRISIS	-0.60103553	0.12207268	69.77193386	43.06	0.0001
MOREOTH	1.47102104	0.22654263	68.32066185	42.16	0.0001
SUPERIOR	1.59331405	0.41702247	23.65364340	14.60	0.0002
INDEP	-0.15964334	0.24674837	0.67827715	0.42	0.5181

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 10 VARIABLE INFERIOR ENTERED R SQUARE = 0.55564542
C(P) = 49.22017042

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	10	735.09549117	73.50954912	46.14	0.0001
ERROR	369	587.86240356	1.59312304		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.82944276				
DEVSELF	-0.68724520	0.09347124	86.12251764	54.06	0.0001
GATHINF	0.23463412	0.14023841	4.45961610	2.80	0.0952
GIVEINF	-0.72636141	0.14194730	41.71580204	26.18	0.0001
HANDOUT	-0.33576586	0.09609212	19.45122146	12.21	0.0005
RESPCOOP	-1.16219527	0.23060459	40.39416759	25.36	0.0001
CRISIS	-0.78425508	0.12120062	66.70436072	41.87	0.0001
MOREOTH	1.47664065	0.22463947	68.83779686	43.21	0.0001
INFERIOR	0.70126428	0.25905231	11.67448767	7.33	0.0071
SUPERIOR	1.62321856	0.41364897	24.53236522	15.40	0.0001
INDEP	-0.21630135	0.24555860	1.23611097	0.78	0.3790

STEP 11 VARIABLE DEVELOP ENTERED R SQUARE = 0.56469077
C(P) = 42.74744797

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	11	747.32670010	67.93879092	43.43	0.0001
ERROR	368	575.63119464	1.56421520		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.90176419				
DEVELOP	-0.24715660	0.08836647	12.23120892	7.82	0.0054
DEVSELF	-0.65416957	0.09337156	76.77997941	49.09	0.0001
GATHINF	0.14597784	0.14253118	1.64078100	1.05	0.3064
GIVEINF	-0.71288739	0.14073607	40.13539496	25.66	0.0001
HANDOUT	-0.35364974	0.09543086	21.48154594	13.73	0.0002
RESPCOOP	-1.19656403	0.22907050	42.82335255	27.38	0.0001
CRISIS	-0.90230067	0.12729933	78.58630209	50.24	0.0001
MOREOTH	1.50666860	0.22285092	71.49951881	45.71	0.0001
INFERIOR	0.75453400	0.25739716	13.44146627	8.59	0.0036
SUPERIOR	2.14343784	0.45012284	35.46959199	22.68	0.0001

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

INDEP	-0.37389429	0.24976194	3.50543295	2.24	0.1352

STEP 12 VARIABLE DEPEND ENTERED R SQUARE = 0.57190070
C(P) = 38.32332956

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	12	756.60054743	63.05004562	40.66	0.0001
ERROR	367	566.35734730	1.54320803		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.88473097				
DEVELOP	-0.25929758	0.08793054	13.41967250	8.70	0.0034
DEVSELF	-0.60810742	0.09462677	63.73192367	41.30	0.0001
GAINING	0.26693695	0.14992327	4.89219529	3.17	0.0756
GIVEING	-0.73375629	0.14004682	42.36250696	27.45	0.0001
HANDBOOI	-0.26625520	0.10127046	10.66731504	6.91	0.0089
RESPCOOP	-1.18242634	0.22762232	41.64309334	26.98	0.0001
CRISIS	-0.91179786	0.12650097	80.17406462	51.95	0.0001
MOREOTH	1.60505446	0.22495850	78.55958692	50.91	0.0001
INFERIOR	1.00442830	0.27523626	20.55185620	13.32	0.0003
SUPERIOR	2.23454642	0.44863217	38.28444997	24.81	0.0001
DEPEND	-0.59332119	0.24203163	9.27384734	6.01	0.0147
INDEP	-0.47125473	0.25123616	5.42956103	3.52	0.0615

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 13 VARIABLE SECURITY ENTERED R SQUARE = 0.57954335
C(P) = 33.31937190

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	13	766.71144979	58.97780383	38.81	0.0001
ERROR	366	556.24644494	1.51979903		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.94871391				
DEVELOP	-0.29766120	0.08852092	17.16668504	11.31	0.0009
DEVSELF	-0.62800454	0.09422265	67.51513339	44.42	0.0001
GAINING	0.29466186	0.14916961	5.93025413	3.90	0.0490
GIVEING	-0.66732106	0.14014174	36.55696985	24.05	0.0001
HANDOUT	-0.29284103	0.10102662	12.76963092	8.40	0.0041
RESPCOOP	-1.13404547	0.22666676	38.04270723	25.03	0.0001
SECURITY	-0.20832640	0.08076856	10.11090236	6.65	0.0103
CRISIS	-0.93626247	0.12589566	84.05426605	55.31	0.0001
MORECTR	1.45646641	0.23055877	60.64902236	39.91	0.0001
INFERIOR	1.03295407	0.27336456	21.70020176	14.28	0.0002
SUPERIOR	2.70810641	0.48156776	46.05811567	31.02	0.0001
DEPEND	-0.62030938	0.24041672	10.11750720	6.66	0.0103
INDEP	-0.63276537	0.25706837	9.20819009	6.06	0.0145

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 14 VARIABLE TEAM ENTERED R SQUARE = 0.58463561
C(P) = 30.65266913

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	14	773.44829465	55.24630676	36.70	0.0001
ERROR	365	549.50960009	1.50550575		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.93854324				
DEVELOP	-0.32253241	0.08888347	19.82381094	13.17	0.0003
DEVSELF	-0.61098100	0.09412319	63.43727468	42.14	0.0001
GATHINF	0.23899248	0.15078065	3.78232221	2.51	0.1136
GIVEINF	-0.65251356	0.14044840	32.49565047	21.58	0.0001
HANDOUT	-0.26901660	0.10117922	10.64264957	7.07	0.0082
RESPCOOP	-1.13500321	0.22559883	38.10663795	25.31	0.0001
SECURITY	-0.21487138	0.08044740	10.74027899	7.13	0.0079
CRISIS	-1.08287722	0.14319363	86.09806289	57.19	0.0001
MORECOM	1.26138960	0.24730890	39.16529693	26.01	0.0001
INFERIOR	1.06665957	0.27254777	23.06809248	15.32	0.0001
SUPERIOR	2.96751666	0.49475641	54.16090147	35.98	0.0001
DEPEND	-0.70210577	0.24238768	12.63183455	8.39	0.0040
INDEP	-0.72707932	0.25971228	11.79943013	7.84	0.0054
TEAM	0.26390129	0.13420859	6.73684465	4.47	0.0351

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 15 VARIABLE INITIAT ENTERED R SQUARE = 0.58806655
C(P) = 29.50661361

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	15	777.98993521	51.86599568	34.64	0.0001
ERROR	364	544.96795953	1.49716472		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.95174628				
DEVELOP	-0.29617144	0.08991983	16.24220360	10.85	0.0011
DEVSELF	-0.62652700	0.09428554	66.10875811	44.16	0.0001
GAINING	0.30557493	0.15514616	5.80795144	3.88	0.049[illegible]
GIVEING	-0.61487909	0.14171581	28.18463465	18.83	0.0001
HANDOUT	-0.29590123	0.10207245	12.58189547	8.40	0.004[illegible]
RESPCOOP	-1.12233044	0.22509065	37.22169724	24.86	0.0001
SECURITY	-0.25151581	0.08293727	13.76894665	9.20	0.002[illegible]
CRISIS	-1.18140034	0.15359261	88.57744411	59.16	0.0001
MOREOIN	1.21435348	0.24809707	35.86877612	23.96	0.0001
INITIAT	-0.78565560	0.45108732	4.54164056	3.03	0.082[illegible]
INFERIOR	1.05942191	0.27162526	22.74195862	15.19	0.0001
SUPERIOR	3.67312292	0.63840061	49.56258167	33.10	0.0001
DEPEND	-0.56568524	0.25406917	7.42073569	4.96	0.026[illegible]
INDEP	-0.71016075	0.25917393	11.24087909	7.51	0.006[illegible]
TEAM	0.27837423	0.13387391	6.47344961	4.32	0.038[illegible]

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 16 VARIABLE CONFLICT ENTERED R SQUARE = 0.59133377
C(P) = 26.51427236

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	16	782.30967465	48.89435467	32.83	0.0001
ERROR	363	540.64822008	1.48936904		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.91244927				
DEVELOP	-0.26778786	0.08982102	15.28963414	10.27	0.0015
DEVSELF	-0.65346612	0.09536147	69.93722941	46.96	0.0001
GATHINF	0.31099926	0.15477552	6.01343057	4.04	0.0452
GIVEINF	-0.62405229	0.14144992	28.96976627	19.46	0.0001
HANDROUT	-0.29253556	0.10182622	12.29267056	8.25	0.0043
RESPCOOP	-1.09681474	0.22500474	35.39067976	23.76	0.0001
SECURITY	-0.26806092	0.08329014	15.42723036	10.36	0.0014
CONFLICT	-0.16772348	0.09648479	4.31973945	2.90	0.0894
CRISIS	-1.22534201	0.15535091	92.66061314	62.21	0.0001
MORECTN	1.21119226	0.24745693	35.68026412	23.96	0.0001
INITIAT	-0.98233984	0.46450075	6.66129740	4.47	0.0351
INFERIOR	1.07048650	0.27119630	23.20614681	15.58	0.0001
SUPERIOR	4.12680779	0.69022178	53.24260736	35.75	0.0001
DEPEND	-0.52671365	0.25445954	6.38145658	4.28	0.0392
INDEP	-0.77118269	0.26097153	13.00578039	8.73	0.0033
TEAM	0.26179516	0.13354092	6.63203044	4.45	0.0355

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 17 VARIABLE SEND ENTERED R SQUARE = 0.59369615
C(P) = 28.34931436

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	17	785.43500465	46.20205910	31.12	0.0001
ERROR	362	537.52289008	1.48486986		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.83305024				
DEVELOP	-0.30685481	0.09064249	17.01729686	11.46	0.0008
DEVSELF	-0.64709166	0.09531601	68.43371052	46.09	0.0001
GATHINF	0.30400499	0.15461571	5.74040546	3.87	0.0500
GIVEINF	-0.71070903	0.15334646	31.89513462	21.48	0.0001
HANDROUT	-0.26242162	0.10191034	11.40375190	7.68	0.0059
RESPCOOP	-1.14773131	0.22736785	37.82982451	25.48	0.0001
SECURITY	-0.26430733	0.08391425	17.04464643	11.48	0.0008
CONFLICT	-0.18136055	0.09676350	5.00501387	3.37	0.0672
CRISIS	-1.21342326	0.15533245	90.61260618	61.02	0.0001
MORECTR	1.22579880	0.24728626	36.48545875	24.57	0.0001
INITIAT	-1.25348743	0.50003671	9.33092240	6.28	0.0126
INFERIOR	1.06672391	0.27079696	23.04116791	15.52	0.0001
SUPERIOR	4.13984569	0.68923243	53.57045039	36.08	0.0001
SEND	0.46945266	0.32358490	3.12533000	2.10	0.1477
DEPEND	-0.54736578	0.25447167	6.87012769	4.63	0.0321
INDEP	-0.83475480	0.26423399	14.81934086	9.98	0.0017
TEAM	0.28730773	0.13339229	6.88845037	4.64	0.0315

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 16 VARIABLE DIRECT ENTERED R SQUARE = 0.59715365
C(P) = 27.16075475

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	16	790.00913237	43.86939624	29.73	0.0001
ERROR	361	532.94876236	1.47631236		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.84483510				
DEVELOP	-0.31243841	0.09043657	17.62052727	11.94	0.0006
DIRECT	-0.23021630	0.13078695	4.57412772	3.10	0.0792
DEVSELF	-0.61671416	0.09659708	60.17527960	40.76	0.0001
GATHINF	0.19958161	0.16518960	2.15503711	1.46	0.2276
GIVEINF	-0.72130405	0.15302239	32.80235510	22.22	0.0001
HANDOUT	-0.29456571	0.10185020	12.34663315	8.36	0.0041
RESPCODE	-1.11413060	0.22753383	35.39635264	23.98	0.0001
SECURITY	-0.26714622	0.08423818	14.84767124	10.06	0.0016
CONFLICT	-0.17949695	0.09850413	4.90211567	3.32	0.0692
CRISIS	-1.17600504	0.15616577	83.98266264	56.89	0.0001
MOREOTH	1.22809831	0.24657812	36.62144364	24.81	0.0001
INITIAT	-1.19375668	0.49974716	8.42382257	5.71	0.0174
INFERIOR	0.96340296	0.27632198	17.94582156	12.16	0.0005
SUPERIOR	4.20108325	0.68812350	55.02601450	37.27	0.0001
SEND	0.56486941	0.32924630	4.65858753	3.16	0.0765
DEPEND	-0.49635405	0.25538696	5.57652897	3.78	0.0527
INDEP	-0.81407520	0.26373328	14.06622057	9.53	0.0022
TEAM	0.30726937	0.13346994	7.82203422	5.30	0.0219

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 19 VARIABLE RECIPNT ENTERED R SQUARE = 0.60072691
C(P) = 25.90427752

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	19	794.73904922	41.82837101	28.51	0.0001
ERROR	360	528.21884552	1.46727457		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.82264920				
DEVELOP	-0.33916662	0.09138009	20.21319149	13.78	0.0002
DIRECT	-0.26035979	0.13146443	5.75496488	3.92	0.0484
DEVSELF	-0.56796074	0.10005605	47.27824262	32.22	0.0001
GAINING	0.31296471	0.17637612	4.61979357	3.15	0.0768
GIVEINF	-0.77010813	0.15495605	36.24079645	24.70	0.0001
HANDBOOK	-0.28040616	0.10184377	11.12266828	7.58	0.0062
RESPCOOP	-1.02723750	0.23194165	28.78032212	19.61	0.0001
SECURITY	-0.32959793	0.09069642	19.29157595	13.15	0.0003
CONFLICT	-0.15720169	0.09898413	3.70080126	2.52	0.1131
CRISIS	-1.17594125	0.15571120	83.68409487	57.03	0.0001
MORECTN	1.28420235	0.24780031	39.40711250	26.86	0.0001
INITIAT	-1.62670495	0.55350307	12.67327595	8.64	0.0035
RECIPNT	-0.57679131	0.32125334	4.72991685	3.22	0.0734
INFERIOR	0.96169529	0.27547652	17.88204535	12.19	0.0005
SUPERIOR	4.29140769	0.66785610	57.11047244	38.92	0.0001
SEND	1.22782663	0.48569465	9.37383596	6.39	0.0119
DEPEND	-0.31976700	0.27294054	2.01392163	1.37	0.2421
INDEP	-0.87099127	0.26482690	15.87114427	10.82	0.0011
TEAM	0.30153424	0.13311513	7.54365651	5.14	0.0240

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 20 VARIABLE PLANORG ENTERED R SQUARE = 0.60352671
C(P) = 25.34028521

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	20	798.44042509	39.92202125	27.32	0.0001
ERROR	359	524.51746965	1.46105145		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.80111222				
DEVELOP	-0.37302876	0.09363503	23.18854590	15.87	0.0001
DIRECT	-0.29552571	0.13303285	7.21005032	4.93	0.0269
DEVSELF	-0.56776298	0.09984372	47.24525086	32.34	0.0001
GATHINF	0.25877949	0.17926389	3.04466548	2.08	0.1497
GIVEINF	-0.77051109	0.15462730	36.27863579	24.83	0.0001
HANDOUT	-0.26527834	0.10167365	11.50234103	7.87	0.0053
PLANORG	-0.22686801	0.14254652	3.70137587	2.53	0.1123
RESPCODE	-1.00276724	0.23195931	27.30499861	18.69	0.0001
SECURITY	-0.36901302	0.09402507	22.50409453	15.40	0.0001
CONFLICT	-0.16601816	0.09892919	4.11460154	2.82	0.0942
CRISIS	-1.20692656	0.16556227	85.55505016	58.56	0.0001
MOREOTH	1.25985063	0.24774712	37.76212514	25.86	0.0001
INITIAT	-1.52075075	0.55632513	10.91752601	7.47	0.0066
RECIPNT	-0.62151140	0.32180027	5.44992973	3.73	0.0542
INFERIOR	0.96313620	0.27522156	18.64352032	12.76	0.0004
SUPERIOR	4.79906263	0.75688511	58.73839092	40.20	0.0001
SEND	1.27038734	0.46540760	10.00747683	6.85	0.0092
DEPEND	-0.33325921	0.27249299	2.18534062	1.50	0.2221
INDEP	-1.03411432	0.28344375	19.44772610	13.31	0.0003
TEAM	0.33540963	0.13449712	9.08636496	6.22	0.0131

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 21 VARIABLE SUPERVIZ ENTERED R SQUARE = 0.60677441
C(P) = 24.36399078

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	21	802.73699910	38.22557139	26.31	0.0001
ERROR	358	520.22089564	1.45313099		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.77869688				
DEVELOP	-0.39113156	0.09397246	25.17383034	17.32	0.0001
DIRECT	-0.32454397	0.13374075	8.55705554	5.89	0.0157
DEVSELF	-0.54974182	0.10012274	43.80634650	30.15	0.0001
GAINING	0.19939241	0.18208276	1.74254649	1.20	0.2742
GIVEING	-0.83302396	0.15843501	40.17144509	27.64	0.0001
HANDROJ1	-0.29090609	0.10145050	11.94818813	8.22	0.0044
LEANORG	-0.25544428	0.14312833	4.62656033	3.19	0.0752
RESPCOOR	-1.01273240	0.23140231	27.83292245	19.15	0.0001
SECURITY	-0.38900142	0.09446764	24.62956809	16.95	0.0001
SUPERVIZ	-0.24376632	0.14176367	4.29657401	2.96	0.0864
CONFLICT	-0.14557741	0.09937424	3.11649511	2.15	0.1436
CRISIS	-1.26887194	0.16560540	88.01877124	60.57	0.0001
MORECIM	1.28033364	0.24707484	37.81105237	26.02	0.0001
INITIAT	-1.35936070	0.56269605	8.46084701	5.84	0.0161
RECAPNT	-0.66976533	0.32215242	6.28135359	4.32	0.0386
INFERIOR	0.96728003	0.27462942	18.02665236	12.41	0.0005
SUPERIOR	4.74765923	0.75542294	57.39624855	39.50	0.0001
SEND	1.46347584	0.49694331	12.60265919	8.67	0.0034
DRIEND	-0.31276463	0.27201412	1.92137732	1.32	0.2510
INDEP	-0.85141348	0.30196351	11.55099364	7.95	0.0051
TEAM	0.35506164	0.13461906	10.10993969	6.96	0.0087

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 22 VARIABLE INFORM ENTERED R SQUARE = 0.60930155
C(P) = 24.04604846

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	22	806.08028983	36.64001317	25.31	0.0001
ERROR	357	516.87760491	1.44783643		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.81374352				
DEVELOP	-0.46562532	0.10583866	26.02231715	19.35	0.0001
DIRECT	-0.38912456	0.14009635	11.16942262	7.71	0.0056
DEVSELF	-0.52868865	0.10089591	39.75322217	27.46	0.0001
GAINING	0.11093202	0.19084577	0.48917952	0.34	0.5614
GIVING	-0.86727894	0.15974462	42.67609066	29.48	0.0001
HANDOUT	-0.26742907	0.10129135	11.65832425	8.05	0.0048
INFORM	-0.16405937	0.10796269	3.34329073	2.31	0.1295
PLANNING	-0.30466751	0.14649640	6.26289130	4.33	0.0383
RESPCOOP	-0.97140171	0.23257619	25.25728818	17.44	0.0001
SECURITY	-0.39521254	0.09440367	25.37472386	17.53	0.0001
SUPERVIZ	-0.30565409	0.14724932	6.23640113	4.31	0.0386
CONFLICT	-0.13045083	0.09969126	2.47912814	1.71	0.1915
CRISIS	-1.27390832	0.16559647	85.66281164	59.16	0.0001
CORRECTN	1.29662681	0.24777808	39.64622476	27.38	0.0001
INITIAT	-0.94603560	0.62406953	3.32712172	2.30	0.1304
RECIPNT	-0.73218736	0.32417646	7.36585907	5.10	0.0245
INFERIOR	0.91521794	0.27626129	15.89016703	10.98	0.0010
SUPERIOR	4.59211178	0.76096149	52.72529745	36.42	0.0001
SEND	1.73745730	0.52778647	15.69016190	10.84	0.0011
DEPEND	-0.31678259	0.27153087	1.97062370	1.36	0.2441
INDEP	-0.86163252	0.30151083	11.82931012	8.17	0.0045
TEAM	0.36315815	0.13447666	10.55655186	7.29	0.0073

REGRESSION OF GRADE ON SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 23 VARIABLE SANCTION ENTERED R SQUARE = 0.61166463
C(P) = 23.69916161

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	23	809.47113922	35.19439736	24.40	0.0001
ERROR	356	513.48675551	1.44237853		
TOTAL	379	1322.95789474			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.79974072				
DEVELOP	-0.50069427	0.10811436	30.96025901	21.46	0.0001
DIRECT	-0.43089772	0.14246345	13.19534429	9.15	0.0027
DEVSELF	-0.51055557	0.10139761	36.56672506	25.35	0.0001
GAINING	0.03052708	0.19757234	0.03443479	0.02	0.8773
GIVEING	-0.87101187	0.15946163	43.03421825	29.84	0.0001
MANAGOUT	-0.30233086	0.10156634	12.78040495	8.86	0.0031
INFORM	-0.18062204	0.10829909	4.01209386	2.78	0.0962
PLANORG	-0.34560826	0.14863575	7.79831783	5.41	0.0206
RESPCOOR	-0.92199262	0.23436344	22.32309497	15.48	0.0001
SANCTION	-0.12674043	0.08396540	3.39064940	2.35	0.1261
SECURITY	-0.41150628	0.09482313	27.16461902	18.83	0.0001
SUPERVIS	-0.29762051	0.14706030	5.91556350	4.10	0.0438
CONFLICT	-0.13088920	0.09950359	2.49579759	1.73	0.1892
CRISIS	-1.31296519	0.16723546	88.90556387	61.64	0.0001
MONEYTM	1.25966322	0.24648159	37.06922466	25.70	0.0001
INITIAT	-0.77533959	0.63276284	2.16561495	1.50	0.2213
RECIPNT	-0.74560019	0.32368309	7.65334427	5.31	0.0218
INFERIOR	0.66176444	0.27793362	13.86737846	9.61	0.0021
SUPERIOR	4.79617642	0.77109662	55.60199091	38.69	0.0001
SEND	1.62511486	0.52966592	17.11176606	11.86	0.0006
DEPEND	-0.31043131	0.27105025	1.69195446	1.31	0.2529
INDEP	-0.92764901	0.30396803	13.43176271	9.31	0.0024
TEAM	0.39716096	0.13604466	12.29275842	8.52	0.0037

NO OTHER VARIABLES MET THE 0.1500 SIGNIFICANCE LEVEL FOR ENTRY

REGRESSION OF GRADE ON NON-SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

NOTE: 9 OBSERVATIONS DELETED DUE TO MISSING VALUES.

STEP 1 VARIABLE TOOLEQIP ENTERED R SQUARE = 0.02910850
C(P) = 5.43495107

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	1	39.22736458	39.22736458	11.46	0.0006
ERROR	383	1308.39860945	3.41616436		
TOTAL	384	1347.62597403			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.71947851				
TOOLEQIP	-0.35069171	0.10349076	39.22736458	11.46	0.0006

STEP 2 VARIABLE WORKENV ENTERED R SQUARE = 0.03663364
C(P) = 4.43970821

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	2	49.36871328	24.68435664	7.26	0.0008
ERROR	382	1298.25726074	3.39857922		
TOTAL	384	1347.62597403			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.96783424				
TOOLEQIP	-0.23065757	0.12436662	11.71019160	3.45	0.0642
WORKENV	-0.19143454	0.11082076	10.14134671	2.98	0.0849

STEP 3 VARIABLE PHYSREQ ENTERED R SQUARE = 0.04355001
C(P) = 3.66693067

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	3	58.68911843	19.56303948	5.76	0.0008
ERROR	381	1288.93685560	3.38303637		
TOTAL	384	1347.62597403			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.99601455				
PHYSREQ	0.25093916	0.15118349	9.32040514	2.76	0.0976

REGRESSION OF GRADE ON NON-SOCIAL SCALES

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

TOOLEQIP	-0.35755230	0.14566136	20.37675925	6.02	0.014[illegible]
WORKENV	-0.31654896	0.13449902	16.97670385	5.61	0.01[illegible]4

NO OTHER VARIABLES MET THE 0.1500 SIGNIFICANCE LEVEL FOR ENTRY

CROSS-VALIDATION--SOCIAL & NONSOCIAL SCALES ON GRADE

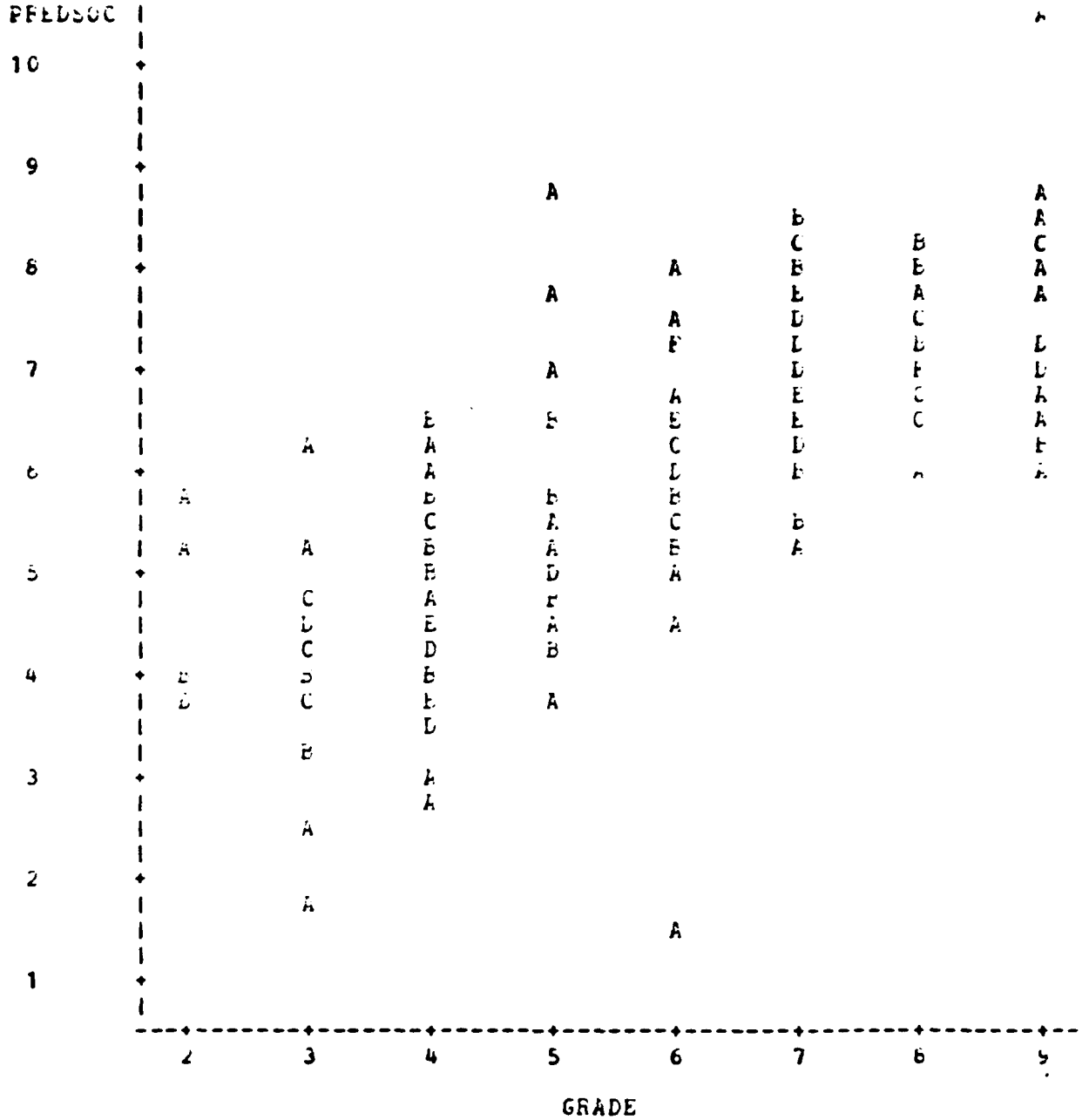
VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
PREDSOC	198	6.014763	1.530590	1190.923	1.57265	10.61967
PREDNS	201	6.054560	0.415991	1216.966	4.59066	6.89105
GRADE	200	5.915000	1.958816	1183.000	2.00000	9.00000

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0
/ NUMBER OF OBSERVATIONS

	PREDSOC	PREDNS	GRADE
PREDSOC	1.00000	0.12602	0.75661
	0.0000	0.0769	0.0001
	198	198	197
PREDNS	0.12602	1.00000	0.11920
	0.0769	0.0000	0.0927
	198	201	200
GRADE	0.75661	0.11920	1.00000
GRADE	0.0001	0.0927	0.0000
	197	200	200

CROSS-VALIDATION--SOCIAL & NONSOCIAL SCALES ON GRADE

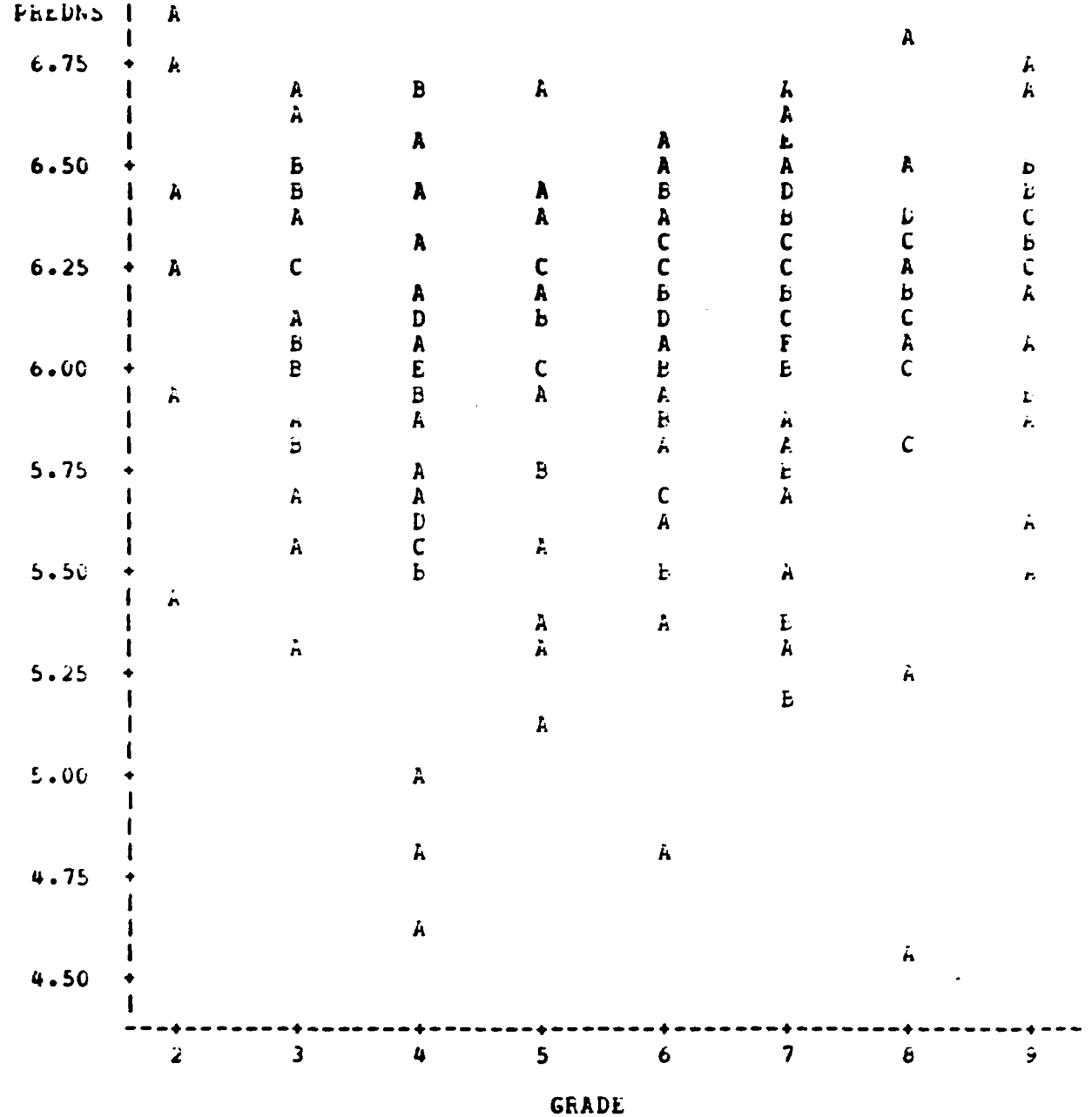
PLOT OF PREDSOC*GRADE LEGEND: A = 1 OBS, B = 2 OBS, ETC.



NOTE: 4 OBS HAD MISSING VALUES

CROSS-VALIDATION--SOCIAL & NONSOCIAL SCALES ON GRADE

PLOT OF PREDNS*GRADE LEGEND: A = 1 OBS, B = 2 OBS, ETC.



NOTE: 1 OBS HAD MISSING VALUES

APPENDIX G

PREDICTING GRADE FROM ITEMS

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

NOTE: 161 OBSERVATIONS DELETED DUE TO MISSING VALUES.

STEP 1 VARIABLE I136 ENTERED R SQUARE = 0.30210874
C(P) = 175.90483916

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	1	256.14930917	256.14930917	100.00	0.0001
ERROR	231	591.72193547	2.56156682		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.65789627				
I136	0.65963140	0.06596409	256.14930917	100.00	0.0001

STEP 2 VARIABLE I206 ENTERED R SQUARE = 0.42721836
C(P) = 105.31832571

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	2	362.22616498	181.11308249	85.77	0.0001
ERROR	230	485.64507966	2.11150035		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.18040801				
I136	0.60399242	0.06040171	211.13276680	99.99	0.0001
I206	-0.42507381	0.05997215	106.07665581	50.24	0.0001

STEP 3 VARIABLE I170 ENTERED R SQUARE = 0.50356412
C(P) = 63.01218618

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	3	426.97449620	142.32483273	77.44	0.0001
ERROR	229	420.89674643	1.83797706		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.79693636				
I136	0.41288790	0.06490346	74.36214966	40.47	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

I170	0.36372158	0.06465051	64.74833324	35.23	0.0001
I206	-0.42624208	0.05595344	106.65941680	56.03	0.0001

STEP 4 VARIABLE I120 ENTERED R SQUARE = 0.54696539
C(P) = 38.66273503

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	4	465.45197111	116.36299278	69.38	0.0001
ERROR	228	382.41927353	1.67727752		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.54243605				
I120	-0.27405672	0.05721692	38.47747290	22.94	0.0001
I136	0.41485652	0.06200259	75.08983545	44.77	0.0001
I170	0.42839740	0.06246000	78.90320251	47.04	0.0001
I206	-0.33913604	0.05646060	60.51482850	36.08	0.0001

STEP 5 VARIABLE I176 ENTERED R SQUARE = 0.57126524
C(P) = 27.74473445

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	5	484.35937354	96.87187471	60.49	0.0001
ERROR	227	363.51187109	1.60137388		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.52885056				
I120	-0.26392631	0.05598297	41.19003546	25.72	0.0001
I136	0.33992310	0.06438879	44.63068248	27.87	0.0001
I170	0.31575623	0.06927716	33.26721804	20.77	0.0001
I176	0.27604715	0.08033665	18.90740243	11.81	0.0007
I206	-0.33113571	0.05521739	57.59079755	35.96	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 6 VARIABLE I93 ENTERED R SQUARE = 0.59212493
C(P) = 17.64229567

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	6	502.04569834	83.67428306	54.66	0.0001
ERROR	226	345.82554629	1.53020153		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.53519839				
I93	-0.23986294	0.07055352	17.68632480	11.56	0.0008
I120	-0.27436399	0.05479699	38.36095227	25.07	0.0001
I136	0.34717766	0.06297783	46.50255596	30.39	0.0001
I170	0.30388544	0.06781012	30.73118951	20.08	0.0001
I176	0.31770722	0.07948139	24.44960636	15.98	0.0001
I206	-0.31432356	0.05420244	51.45941180	33.63	0.0001

STEP 7 VARIABLE I116 ENTERED R SQUARE = 0.60546199
C(P) = 11.90435392

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	7	513.35381182	73.33625883	49.33	0.0001
ERROR	225	334.51743282	1.48674415		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.34724631				
I93	-0.26063482	0.06995112	20.64010095	13.88	0.0002
I116	0.18913014	0.06857784	11.30611346	7.61	0.0063
I120	-0.30502292	0.05514542	45.48647118	30.59	0.0001
I136	0.33549377	0.06222150	43.22392157	29.07	0.0001
I170	0.27480825	0.06766672	24.52141508	16.49	0.0001
I176	0.25895980	0.08118691	15.12542240	10.17	0.0016
I206	-0.30732313	0.05348749	49.08200146	33.01	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 6 VARIABLE I124 ENTERED R SQUARE = 0.62092958
C(P) = 4.93031473

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	8	526.46833979	65.80854247	45.86	0.0001
ERROR	224	321.40290485	1.43483440		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.58676577				
I93	-0.24374466	0.06894581	17.93313452	12.50	0.0005
I116	0.23791871	0.06927585	16.92369602	11.79	0.0007
I120	-0.26583167	0.05570355	32.67754447	22.77	0.0001
I124	-0.26769674	0.08854573	13.11452797	9.14	0.0028
I136	0.34366044	0.06118528	45.26546680	31.55	0.0001
I170	0.29862293	0.06694002	28.55462329	19.90	0.0001
I176	0.26721994	0.07980574	16.08685730	11.21	0.0010
I206	-0.27454219	0.05365251	37.56988782	26.18	0.0001

STEP 9 VARIABLE I43 ENTERED R SQUARE = 0.63241763
C(P) = 0.26514456

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	9	536.20872077	59.57874675	42.63	0.0001
ERROR	223	311.66252386	1.39756979		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.00485041				
I43	-0.10941532	0.04144575	9.74036099	6.97	0.0089
I93	-0.24390063	0.06804513	17.95607810	12.85	0.0004
I116	0.24728707	0.06846286	18.23360160	13.05	0.0004
I120	-0.26771493	0.05498047	33.13660801	23.71	0.0001
I124	-0.28484717	0.08763011	14.76715488	10.57	0.0013
I136	0.36628593	0.06099110	50.40658239	36.07	0.0001
I170	0.30296621	0.06608599	29.37306651	21.02	0.0001
I176	0.31236132	0.08059788	20.99166711	15.02	0.0001
I206	-0.25693536	0.05336994	32.39171687	23.18	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 10 VARIABLE I66 ENTERED R SQUARE = 0.64419813
C(P) = -4.56970560

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	10	546.19706957	54.61970696	40.19	0.0001
ERROR	222	301.67417506	1.35889268		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.95285393				
I43	-0.14143881	0.04254064	15.02153602	11.05	0.0010
I66	0.12630555	0.04658737	9.98834860	7.35	0.0072
I93	-0.25372298	0.06719422	19.37496340	14.26	0.0002
I116	0.21099286	0.06882292	12.77187005	9.40	0.0024
I120	-0.26102757	0.05443588	36.21700513	26.65	0.0001
I124	-0.25472661	0.08711971	11.61718607	8.55	0.0038
I136	0.31635465	0.06268551	35.04880958	25.79	0.0001
I170	0.27441063	0.06601037	23.48349111	17.28	0.0001
I176	0.29114095	0.07985873	18.06121451	13.29	0.0003
I206	-0.24503495	0.05280863	29.25710934	21.53	0.0001

STEP 11 VARIABLE I17 ENTERED R SQUARE = 0.65115320
C(P) = -6.60492134

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	11	552.09407409	50.19037037	37.50	0.0001
ERROR	221	295.77717055	1.33835824		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.21263270				
I17	-0.06534141	0.03112656	5.89700451	4.41	0.0369
I43	-0.13221634	0.04244600	12.96561367	9.70	0.0021
I66	0.12657906	0.04624672	10.34549141	7.73	0.0059
I93	-0.23022554	0.06761764	15.51527210	11.59	0.0008
I116	0.20758599	0.06832023	12.35577211	9.23	0.0027
I120	-0.26310066	0.05403205	36.74107913	27.45	0.0001
I124	-0.25796012	0.08647269	11.91021487	8.90	0.0032
I136	0.31844229	0.06221009	35.06809414	26.20	0.0001
I170	0.27486826	0.06551009	23.56162210	17.60	0.0001
I176	0.27727319	0.07952794	16.26854267	12.16	0.0006

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

I20c	-0.24778340	0.05242447	29.69845494	22.34	0.0001

STEP 12 VARIABLE I200 ENTERED R SQUARE = 0.65904443
C(P) = -9.16327852

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	12	558.78481747	46.56540146	35.44	0.0001
ERROR	220	289.08642716	1.31402921		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.15209624				
I17	-0.07143290	0.03096223	6.99416313	5.32	0.0220
I43	-0.12538276	0.04216732	11.61792853	8.84	0.0033
I6c	0.12059799	0.04596074	9.04713366	6.89	0.0093
I93	-0.24452894	0.06729541	17.34774354	13.20	0.0003
I11c	0.20827774	0.06769710	12.43600ce5	9.47	0.0024
I12c	-0.27491355	0.05366150	34.48829745	26.25	0.0001
I124	-0.24976466	0.08576006	11.14544639	8.4c	0.0040
I13c	0.30655054	0.06179774	32.75762816	24.93	0.0001
I17c	0.25400069	0.06556737	19.71965504	15.01	0.0001
I17c	0.25401462	0.07947304	13.42402651	10.22	0.001c
I20c	0.14393907	0.06378874	6.69074336	5.09	0.0250
I20c	-0.25845042	0.05216044	32.26093653	24.55	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 13 VARIABLE I190 ENTERED R SQUARE = 0.66933956
C(P) = -13.15635285

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	13	567.51377983	43.65490614	34.10	0.0001
ERROR	219	280.35746480	1.28017107		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.09213270				
I17	-0.07749061	0.03064866	6.18357828	6.39	0.0122
I43	-0.11435759	0.04183413	9.56613408	7.47	0.0068
I66	0.12370434	0.04538035	9.51266577	7.43	0.0069
I93	-0.24117772	0.06643911	16.86921006	13.18	0.0004
I116	0.22418609	0.06709640	14.29179635	11.16	0.0010
I120	-0.24976376	0.05383421	27.55561944	21.52	0.0001
I124	-0.22736296	0.08506160	9.14189237	7.14	0.0081
I136	0.32347125	0.06126344	35.68918592	27.88	0.0001
I170	0.26895880	0.06497015	21.93874244	17.14	0.0001
I176	0.27694021	0.07693227	15.75907961	12.31	0.0005
I190	-0.19203167	0.07354033	8.72696238	6.82	0.0096
I200	0.16173351	0.06460377	10.13029924	7.91	0.0054
I206	-0.24579379	0.05159066	30.01157429	23.44	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 14 VARIABLE I125 ENTERED R SQUARE = 0.67570592
C(P) = -14.65000112

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	14	572.91162272	40.92225877	32.44	0.0001
ERROR	216	274.95962192	1.26126267		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.03495000				
I17	-0.07614017	0.03042672	7.89719494	6.26	0.0131
I43	-0.11299574	0.04152958	9.33730345	7.40	0.0070
I66	0.12055249	0.04507008	9.02377321	7.15	0.0082
I93	-0.22750237	0.06627764	14.66107585	11.78	0.0007
I11e	0.17591709	0.07056852	7.83802116	6.21	0.0134
I120	-0.23481466	0.05392198	23.91634554	18.96	0.0001
I124	-0.27123735	0.08707392	12.23869898	9.70	0.0021
I125	0.18781191	0.09078607	5.39784288	4.28	0.0396
I13e	0.29956807	0.06189781	29.54286771	23.42	0.0001
I170	0.27987680	0.06470466	23.59799274	18.71	0.0001
I17e	0.25841169	0.07865808	13.54391945	10.74	0.0012
I190	-0.21472353	0.07381533	10.67280505	8.46	0.0046
I200	0.17745511	0.06415874	9.64869905	7.65	0.0062
I206	-0.25174044	0.05121731	30.47087048	24.16	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 15 VARIABLE I94 ENTERED R SQUARE = 0.68387360
C(P) = -17.58666750

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	15	579.83693186	38.65579546	31.30	0.0001
ERROR	217	268.03431277	1.23518116		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.98864529				
I17	-0.06393009	0.03029140	9.48259931	7.68	0.0061
I43	-0.09736418	0.04162445	6.75821492	5.47	0.0202
I66	0.12493864	0.04463974	9.67566670	7.83	0.0056
I93	-0.16509671	0.06798912	9.15500679	7.41	0.0070
I94	-0.11631517	0.04912268	6.92530915	5.61	0.0186
I116	0.19738044	0.07042034	9.70381718	7.86	0.0055
I120	-0.24282305	0.05346820	25.47530202	20.62	0.0001
I124	-0.25676469	0.08636474	10.91257391	8.83	0.0033
I125	0.21720935	0.09069555	7.08460603	5.74	0.0175
I150	0.29279551	0.06132073	28.16078686	22.80	0.0001
I170	0.25066217	0.06405542	19.76908542	16.01	0.0001
I178	0.27936031	0.07853775	15.62799363	12.65	0.0005
I190	-0.19976748	0.07331940	9.17126892	7.43	0.0070
I200	0.17379337	0.06351024	9.24931506	7.49	0.0067
I206	-0.24750816	0.05071609	29.41833898	23.82	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 16 VARIABLE I136 ENTERED R SQUARE = 0.69329654
C(P) = -21.05576367

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	16	587.82620219	36.73913764	30.52	0.0001
ERROR	216	260.04504245	1.20391223		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.98031542				
I17	-0.09015450	0.03000298	10.87028590	9.03	0.0030
I43	-0.10034292	0.04111047	7.17236007	5.96	0.0155
I66	0.13895971	0.04440591	11.78938194	9.79	0.0020
I93	-0.17798454	0.06717981	8.45046970	7.02	0.0087
I94	-0.16147652	0.05156834	11.80449346	9.81	0.0020
I11e	0.16904720	0.06959649	8.86250903	7.36	0.0071
I120	-0.24430477	0.05279021	25.78409431	21.42	0.0001
I124	-0.23614649	0.06565905	9.14979363	7.60	0.0063
I125	0.21997661	0.08954665	7.26523968	6.03	0.0146
I136	0.24669677	0.06289227	18.85553143	15.66	0.0001
I138	0.17735023	0.06684551	7.98927032	6.64	0.0107
I170	0.23366905	0.06456491	15.76899639	13.10	0.0004
I176	0.24644071	0.07858328	11.84020907	9.83	0.0020
I190	-0.20475228	0.07241105	9.62592803	8.00	0.0051
I200	0.15162691	0.06327837	6.93077366	5.76	0.0173
I206	-0.24030948	0.05014795	27.64587096	22.96	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 17 VARIABLE I205 ENTERED R SQUARE = 0.69946649
C(P) = -22.64706839

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	17	593.07448172	34.88673422	29.44	0.0001
ERROR	215	254.79676292	1.18510122		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.08923104				
I17	-0.08754764	0.02979342	10.23301436	8.63	0.0037
I43	-0.10363948	0.04081611	7.64012047	6.45	0.0118
I66	0.14160527	0.04407556	12.23259592	10.32	0.0015
I93	-0.14779063	0.06817970	5.56851060	4.70	0.0313
I94	-0.17003813	0.05162967	13.77749655	11.63	0.0008
I110	0.16634253	0.06989040	6.71315925	5.66	0.0182
I120	-0.21472893	0.05422900	18.58118718	15.68	0.0001
I124	-0.22493192	0.08515412	8.26867152	6.98	0.0089
I125	0.21269034	0.08091176	6.78160634	5.72	0.0178
I136	0.26306453	0.06276215	20.82334016	17.57	0.0001
I138	0.19230152	0.06867404	9.29256667	7.84	0.0056
I170	0.22597813	0.06416269	14.70019603	12.40	0.0005
I176	0.25160782	0.07800864	12.34833591	10.42	0.0014
I190	-0.20004121	0.07187799	9.17915202	7.75	0.0059
I200	0.14534515	0.06285757	6.33638145	5.35	0.0217
I205	-0.13008824	0.06181691	5.24827953	4.43	0.0365
I206	-0.19830688	0.05360874	16.21659965	13.68	0.0003

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 16 VARIABLE I163 ENTERED R SQUARE = 0.70433537
C(P) = -23.46032664

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	16	597.18570644	33.17698369	28.32	0.0001
ERROR	214	250.68553820	1.17142775		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.14247186				
I17	-0.06948429	0.02963908	10.67774577	9.12	0.0028
I43	-0.09747449	0.04071516	6.71406028	5.73	0.0175
I66	0.14466102	0.04385090	12.74857083	10.88	0.0011
I93	-0.13561045	0.06809633	4.64573452	3.97	0.0477
I94	-0.17579066	0.05133112	13.73869682	11.73	0.0007
I116	0.17726091	0.06973092	7.57161644	6.46	0.0117
I120	-0.20880146	0.05400601	17.50920220	14.95	0.0001
I124	-0.19458080	0.08619766	5.96931294	5.10	0.0250
I125	0.20927873	0.08641610	6.56300837	5.60	0.0188
I136	0.26403355	0.06240109	20.97246155	17.90	0.0001
I138	0.21682450	0.06952023	11.39488033	9.73	0.0021
I163	-0.13169338	0.07029688	4.11122472	3.51	0.0624
I170	0.26241462	0.06669059	18.13667638	15.48	0.0001
I176	0.25778104	0.07762282	12.91926769	11.03	0.0011
I190	-0.20003620	0.07146213	9.17687595	7.84	0.0056
I200	0.16327881	0.06322284	7.81316800	6.67	0.0105
I205	-0.13000744	0.06145927	5.24175939	4.47	0.0356
I206	-0.21048422	0.05369349	18.00160962	15.37	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 19 VARIABLE I175 ENTERED R SQUARE = 0.70864423
C(P) = -24.07628959

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	19	601.00863595	31.63203347	27.29	0.0001
ERROR	213	246.86260866	1.15897938		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.08293652				
I17	-0.08435660	0.02961605	9.40289460	8.11	0.0048
I43	-0.10008304	0.04052371	7.06933165	6.10	0.0143
I66	0.14570487	0.04362107	12.93097223	11.16	0.0010
I93	-0.12201401	0.06614600	3.71547540	3.21	0.0746
I94	-0.17610853	0.05105796	13.78826444	11.90	0.0007
I116	0.16757641	0.06956495	6.72543716	5.80	0.0169
I120	-0.20377619	0.05379143	16.63276236	14.35	0.0002
I124	-0.18675393	0.08584670	5.48489131	4.73	0.0307
I125	0.21026594	0.08794675	6.62481943	5.72	0.0177
I136	0.21087229	0.06862433	10.94355649	9.44	0.0024
I138	0.20965113	0.06926257	10.61673896	9.16	0.0028
I163	-0.14082292	0.07010263	4.67682663	4.04	0.0456
I170	0.26068249	0.06634066	17.92260806	15.46	0.0001
I175	0.12927245	0.07117798	3.82292951	3.30	0.0707
I176	0.22767749	0.07694537	9.65662226	8.33	0.0043
I190	-0.22283336	0.07216101	11.04562455	9.53	0.0023
I200	0.16358963	0.06288625	7.84286460	6.77	0.0099
I205	-0.12645389	0.06116315	4.95405048	4.27	0.0399
I206	-0.20017172	0.05370843	16.09690351	13.89	0.0002

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 20 VARIABLE I140 ENTERED R SQUARE = 0.71297767
C(P) = -24.47444550

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	20	604.51326548	30.22566327	26.33	0.0001
ERROR	212	243.35797915	1.14791500		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.16398054				
I17	-0.08488882	0.02947592	9.52085819	8.29	0.0044
I43	-0.10494064	0.04042552	7.73545740	6.74	0.0101
I66	0.12898978	0.04445386	9.66496895	8.42	0.0041
I93	-0.13008628	0.06797718	4.20397098	3.66	0.0570
I94	-0.14738638	0.05340634	8.74256142	7.62	0.0063
I110	0.17809256	0.06949321	7.53905106	6.57	0.0111
I120	-0.16175990	0.05499717	12.53790986	10.92	0.0011
I124	-0.19076990	0.08546685	5.71916370	4.98	0.0267
I125	0.20524377	0.08757312	6.30533355	5.49	0.0200
I136	0.24222505	0.07061363	13.50729315	11.77	0.0007
I138	0.23371213	0.07029317	12.68954277	11.05	0.0010
I140	-0.11388419	0.06517743	3.50462953	3.05	0.0820
I163	-0.13591528	0.06982392	4.34948544	3.79	0.0529
I170	0.26254745	0.06603011	18.14652556	15.81	0.0001
I175	0.13269834	0.07086454	4.02515602	3.51	0.0625
I176	0.23123611	0.07859114	9.93742426	8.66	0.0036
I190	-0.21351398	0.07203337	10.08544209	8.79	0.0034
I200	0.17450800	0.06289653	6.83663831	7.70	0.0060
I205	-0.13111314	0.06092688	5.31564311	4.63	0.0325
I206	-0.19762480	0.05347131	15.68017493	13.66	0.0003

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 21 VARIABLE I92 ENTERED R SQUARE = 0.71655139
C(P) = -24.54785900

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	21	607.54332126	28.93063435	25.40	0.0001
ERROR	211	240.32792338	1.13899490		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.21944993				
I17	-0.08883713	0.02946079	10.35671422	9.09	0.0029
I43	-0.10458319	0.04026874	7.68262235	6.75	0.0101
I66	0.11658483	0.04492921	7.66916805	6.73	0.0101
I92	0.09798241	0.06007361	3.03005578	2.66	0.1044
I93	-0.13650707	0.06782682	4.61346551	4.05	0.0454
I94	-0.15138471	0.05325489	9.20379316	8.08	0.0049
I110	0.16661275	0.06957958	6.53092511	5.73	0.0175
I120	-0.17231480	0.05508828	11.14418967	9.78	0.0020
I124	-0.20161394	0.08540296	6.36030613	5.58	0.0190
I125	0.20071592	0.08727637	6.02409897	5.29	0.0224
I136	0.24018706	0.07035003	13.27676923	11.66	0.0006
I138	0.22442726	0.07025055	11.62447970	10.21	0.0016
I140	-0.12702390	0.06542161	4.29386320	3.77	0.0535
I163	-0.12937366	0.06966764	3.92781751	3.45	0.0647
I170	0.25101622	0.06615193	16.39986640	14.40	0.0002
I175	0.12562015	0.07072194	3.59361869	3.16	0.0771
I176	0.24237681	0.07856261	10.83555233	9.51	0.0023
I190	-0.21595242	0.07186145	10.67056365	9.37	0.0025
I200	0.18006309	0.06274418	9.38046282	8.24	0.0045
I205	-0.12935229	0.06070129	5.17216731	4.54	0.0342
I206	-0.21020426	0.05381865	17.37557644	15.26	0.0001

REGRESSION OF GRADE ON SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 22 VARIABLE I150 ENTERED R SQUARE = 0.71948797
C(P) = -24.25160960

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	22	610.03315716	27.72877987	24.48	0.0001
ERROR	210	237.83808747	1.13256232		
TOTAL	232	847.87124464			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.11427940				
I17	-0.08490145	0.02949716	9.38279079	8.28	0.0044
I43	-0.10407468	0.04015633	7.60753927	6.72	0.0102
I66	0.12046226	0.04487642	8.15997793	7.20	0.0079
I92	0.09624531	0.05991519	2.92245230	2.58	0.1097
I93	-0.12404813	0.06815500	3.75186473	3.31	0.0702
I94	-0.14380514	0.05334978	8.22897457	7.27	0.0076
I110	0.16505509	0.06939077	6.40791166	5.66	0.0183
I120	-0.16149560	0.05541503	9.61896622	8.49	0.0040
I124	-0.19604787	0.08525023	5.98956467	5.29	0.0224
I125	0.21490162	0.08755386	6.82324073	6.02	0.0149
I136	0.24681006	0.07039175	14.14993389	12.49	0.0005
I138	0.23286262	0.07026254	12.43273903	10.98	0.0011
I140	-0.12851233	0.06524433	4.39406156	3.88	0.0502
I150	-0.12770158	0.08612752	2.48963591	2.20	0.1397
I163	-0.12339110	0.06956771	3.56094011	3.14	0.0778
I170	0.26974767	0.06716371	18.26672146	16.13	0.0001
I175	0.13546137	0.07083361	4.14203923	3.66	0.0572
I176	0.25970178	0.07922679	12.16936437	10.74	0.0012
I190	-0.19490523	0.07362251	7.93757618	7.01	0.0087
I200	0.16635370	0.06271044	10.00134749	8.83	0.0033
I205	-0.11697130	0.06110290	4.15046919	3.66	0.0569
I206	-0.21008147	0.05366652	17.35524112	15.32	0.0001

NO OTHER VARIABLES MET THE 0.1500 SIGNIFICANCE LEVEL FOR ENTRY

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

NOTE: 136 OBSERVATIONS DELETED DUE TO MISSING VALUES.

STEP 1 VARIABLE I26 ENTERED R SQUARE = 0.21718452
C(P) = 166.08217042

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	1	195.97535552	195.97535552	71.02	0.0001
ERROR	256	706.36960572	2.75925627		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.77354389				
I26	-0.53923215	0.06398395	195.97535552	71.02	0.0001

STEP 2 VARIABLE I171 ENTERED R SQUARE = 0.31299819
C(P) = 134.21776768

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	2	282.43233898	141.21616949	58.09	0.0001
ERROR	255	619.91262226	2.43102989		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.07090279				
I26	-0.47490535	0.06101686	147.25696238	60.57	0.0001
I171	0.47326670	0.07936324	86.45696346	35.56	0.0001

STEP 3 VARIABLE I3 ENTERED R SQUARE = 0.35966333
C(P) = 109.96302153

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	3	324.54039257	108.18013086	47.56	0.0001
ERROR	254	577.80456667	2.27482114		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.32406753				
I3	-0.13358598	0.03104931	42.10805359	18.51	0.0001

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

I26	-0.46313499	0.05908928	139.74780414	61.43	0.0001
I171	0.53394363	0.07605493	106.44796141	46.79	0.0001

STEP 4 VARIABLE I165 ENTERED R SQUARE = 0.40335995
C(P) = 87.41631409

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	4	363.96981632	90.99245408	42.76	0.0001
ERROR	253	538.37514492	2.12796500		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.72154573				
I3	-0.13631417	0.03003705	43.82601902	20.60	0.0001
I26	-0.43570830	0.05750422	122.16777541	57.41	0.0001
I165	0.25989620	0.06037752	39.42942375	18.53	0.0001
I171	0.40992146	0.06080455	54.76387007	25.74	0.0001

STEP 5 VARIABLE I29 ENTERED R SQUARE = 0.43070516
C(P) = 74.04540492

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	5	388.64465326	77.72893065	38.13	0.0001
ERROR	252	513.70030798	2.03849329		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.70329113				
I3	-0.12034846	0.02975480	33.34850614	16.36	0.0001
I26	-0.58250432	0.07034175	139.79164303	68.58	0.0001
I29	0.26609108	0.06223029	24.67483694	12.10	0.0006
I165	0.24773165	0.05919797	35.69921620	17.51	0.0001
I171	0.38395041	0.07943908	47.62019740	23.36	0.0001

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 6 VARIABLE I129 ENTERED R SQUARE = 0.45014093
C(P) = 65.11904417

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	6	406.16239882	67.69706647	34.25	0.0001
ERROR	251	496.16256242	1.97674326		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.51002804				
I3	-0.13040783	0.02949466	38.64300446	19.55	0.0001
I28	-0.56294366	0.06957877	129.39772604	65.46	0.0001
I29	0.27027336	0.08114920	21.92745692	11.09	0.0010
I129	0.16591316	0.06241636	17.53774556	8.87	0.0032
I165	0.20709095	0.05986994	23.65129462	11.96	0.0006
I171	0.34636031	0.07923808	37.76927321	19.11	0.0001

STEP 7 VARIABLE I39 ENTERED R SQUARE = 0.47070782
C(P) = 55.55677669

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	7	424.74062921	60.67726132	31.76	0.0001
ERROR	250	477.60413203	1.91041653		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.56459814				
I3	-0.12531424	0.02904163	35.57025439	18.62	0.0001
I28	-0.53906860	0.06882908	117.16513010	61.34	0.0001
I29	0.35671663	0.08467266	34.26619926	17.95	0.0001
I39	-0.21648692	0.06945845	18.55843039	9.71	0.0020
I129	0.22705245	0.06276388	25.00120013	13.09	0.0004
I165	0.19265932	0.05903879	20.34385029	10.65	0.0013
I171	0.33219923	0.07802977	34.62616682	18.12	0.0001

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 8 VARIABLE I48 ENTERED R SQUARE = 0.48794366
C(P) = 47.86715697

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	8	440.29349941	55.03668743	29.66	0.0001
ERROR	249	462.05146183	1.85562836		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.00760680				
I3	-0.11731442	0.02875524	30.88586935	16.64	0.0001
I26	-0.54172676	0.06784115	118.32190206	63.76	0.0001
I29	0.32825887	0.08411024	28.26351867	15.23	0.0001
I39	-0.21646329	0.06845522	18.55437766	10.00	0.0018
I46	-0.10930896	0.03775711	15.55267020	8.38	0.0041
I129	0.24650171	0.06222109	29.12431262	15.70	0.0001
I165	0.21845816	0.05886450	25.55763069	13.77	0.0003
I171	0.29445765	0.07799989	26.44531362	14.25	0.0002

STEP 9 VARIABLE I15 ENTERED R SQUARE = 0.50694431
C(P) = 39.16539365

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	9	457.43864530	50.82651614	28.33	0.0001
ERROR	248	444.90631594	1.79397706		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.10432931				
I3	-0.11590790	0.02827718	30.14189928	16.80	0.0001
I15	-0.12843986	0.04154681	17.14514589	9.56	0.0022
I26	-0.51611521	0.06714049	106.63179443	59.45	0.0001
I29	0.40364812	0.08622171	39.31782383	21.92	0.0001
I39	-0.15754094	0.06995499	9.09842784	5.07	0.0252
I48	-0.13534211	0.03806769	22.67616961	12.64	0.0005
I129	0.24189574	0.06119688	28.02946260	15.62	0.0001
I165	0.24578080	0.05854930	31.61327000	17.62	0.0001
I171	0.29428621	0.07669323	26.41451504	14.72	0.0002

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 10 VARIABLE I71 ENTERED R SQUARE = 0.51642701
C(P) = 34.72972661

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	10	467.80054410	46.78005441	26.59	0.0001
ERROR	247	434.54441714	1.75926914		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.07556884				
I3	-0.12234240	0.02812771	33.26301015	18.92	0.0001
I15	-0.15001542	0.04209272	22.34576055	12.70	0.0004
I26	-0.55107437	0.06786104	116.01565673	65.94	0.0001
I29	0.39945259	0.08540156	38.46895302	21.86	0.0001
I39	-0.17319200	0.06957490	10.90153564	6.20	0.0135
I46	-0.13853775	0.03770108	23.07464814	13.12	0.0004
I71	0.11163411	0.04599873	10.36189860	5.89	0.0158
I129	0.21467333	0.06161674	21.39462636	12.16	0.0006
I165	0.21454511	0.05939184	22.95730826	13.05	0.0004
I171	0.27418272	0.07639656	22.65932756	12.88	0.0004

STEP 11 VARIABLE I73 ENTERED R SQUARE = 0.53387770
C(P) = 26.04401665

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	11	481.74165276	43.79471389	25.61	0.0001
ERROR	246	420.60330848	1.70976673		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.25064321				
I3	-0.11020374	0.02805296	26.38593659	15.43	0.0001
I15	-0.14729854	0.04150698	21.53237695	12.59	0.0005
I26	-0.51056059	0.06836709	95.29797933	55.74	0.0001
I29	0.37966870	0.08447564	34.53695216	20.20	0.0001
I39	-0.15833777	0.06878570	9.05962342	5.30	0.0222
I46	-0.12718921	0.03731060	19.86888201	11.62	0.0008
I71	0.14444803	0.04678011	16.30189353	9.53	0.0022
I73	-0.12867271	0.04506126	13.94130867	8.15	0.0047
I129	0.23864351	0.06131110	25.90350212	15.15	0.0001
I165	0.20600753	0.05862626	21.11149001	12.35	0.0005

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

I171	0.27946772	0.07533639	23.52707699	13.76	0.0003

STEP 12 VARIABLE I68 ENTERED R SQUARE = 0.54514655
C(P) = 23.70691103

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	12	491.91024063	40.99252005	24.47	0.0001
ERROR	245	410.43472061	1.67524376		
TOTAL	257	902.34496124			

	b VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.33519853				
I3	-0.11053433	0.02776861	26.54386188	15.84	0.0001
I15	-0.14641218	0.04108735	21.27236672	12.70	0.0004
I26	-0.47116460	0.06955614	76.86920463	45.89	0.0001
I29	0.37140556	0.08366563	32.99689588	19.70	0.0001
I39	-0.14646503	0.06825800	7.71327452	4.60	0.0329
I46	-0.12696663	0.03693209	19.79926435	11.82	0.0007
I71	0.17556047	0.04799651	22.41362596	13.38	0.0003
I73	-0.12046665	0.04472818	12.15204163	7.25	0.0076
I86	-0.15112481	0.06134070	10.16838787	6.07	0.0144
I129	0.25146072	0.06091149	28.55090112	17.04	0.0001
I165	0.18210174	0.05883698	16.04743056	9.58	0.0022
I171	0.26234397	0.07458300	24.00796169	14.33	0.0002

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 13 VARIABLE I19 ENTERED R SQUARE = 0.55416253
C(P) = 20.64031708

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	13	500.04576638	38.46505911	23.33	0.0001
ERROR	244	402.29919286	1.64876716		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	6.01968137				
I3	-0.11302429	0.02757110	27.70734303	16.80	0.0001
I15	-0.14630335	0.04076140	21.24074284	12.88	0.0004
I19	0.11599697	0.05221959	8.13552775	4.93	0.0272
I28	-0.45358533	0.06945662	70.31533802	42.65	0.0001
I29	0.35606173	0.08330854	30.11632834	18.27	0.0001
I39	-0.15455167	0.06781424	8.56376904	5.19	0.0235
I48	-0.14464648	0.03749359	24.53922899	14.88	0.0001
I71	0.17430184	0.04761909	22.09027265	13.40	0.0003
I73	-0.11886094	0.04437920	11.82711094	7.17	0.0079
I88	-0.15926261	0.06096475	11.25461763	6.83	0.0095
I129	0.23270172	0.06101548	23.98161721	14.55	0.0002
I165	0.16226739	0.05904918	12.45071029	7.55	0.0064
I171	0.27831425	0.07401352	23.31353723	14.14	0.0002

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 14 VARIABLE I42 ENTERED R SQUARE = 0.56366291
C(P) = 17.29940603

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	14	506.61838841	36.32966489	22.42	0.0001
ERROR	243	393.72657283	1.62027396		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.97741273				
I3	-0.11182828	0.02733677	27.11423677	16.73	0.0001
I15	-0.15585702	0.04062056	23.85335403	14.72	0.0002
I19	0.12616171	0.05195468	9.55419735	5.90	0.0158
I28	-0.47701706	0.06960334	76.10201257	46.97	0.0001
I29	0.34109414	0.06284152	27.46687701	16.95	0.0001
I39	-0.18644680	0.06864090	11.95452800	7.38	0.0071
I42	0.09786140	0.04254503	8.57262004	5.29	0.0223
I4c	-0.15127340	0.03727970	26.67894830	16.47	0.0001
I71	0.17390263	0.04720615	21.98890408	13.57	0.0003
I73	-0.13031550	0.04427501	14.03664642	8.66	0.0036
I6b	-0.16083575	0.06043945	11.47394266	7.08	0.0083
I129	0.22347440	0.06061684	22.02057658	13.59	0.0003
I165	0.14617411	0.05695336	9.96121236	6.15	0.0136
I171	0.27135284	0.07343359	22.12420765	13.65	0.0003

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 15 VARIABLE I58 ENTERED R SQUARE = 0.57499978
C(P) = 12.92605841

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	15	518.84815764	34.58987718	21.83	0.0001
ERROR	242	383.49680360	1.58469754		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.91967479				
I3	-0.11107911	0.02703659	26.74898352	16.88	0.0001
I15	-0.14554482	0.04037664	20.59109557	12.99	0.0004
I19	0.12991696	0.05140238	10.12305482	6.39	0.0121
I26	-0.47736563	0.06883509	76.21297210	48.09	0.0001
I29	0.35404344	0.08208537	29.48003411	18.60	0.0001
I39	-0.17825376	0.06795969	10.90237371	6.88	0.0093
I42	0.11218664	0.04245145	11.06735101	6.98	0.0086
I46	-0.15157622	0.03686635	26.78629134	16.90	0.0001
I56	-0.14643032	0.05842018	10.22976923	6.46	0.0117
I71	0.18864885	0.04704441	25.46230057	16.08	0.0001
I73	-0.10794243	0.04466291	9.25628674	5.84	0.0164
I86	-0.14643514	0.05997116	9.70811444	6.13	0.0140
I129	0.24203926	0.06039330	25.45309206	16.06	0.0001
I165	0.14643934	0.05830264	9.99736220	6.31	0.0127
I171	0.28427676	0.07280084	24.16330171	15.25	0.0001

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 16 VARIABLE I38 ENTERED R SQUARE = 0.58227600
C(P) = 10.83552236

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	16	525.41381860	32.83836366	21.00	0.0001
ERROR	241	376.93114264	1.56402964		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.84253642				
I3	-0.11121897	0.02685979	26.81621029	17.15	0.0001
I15	-0.15522547	0.04038979	23.10083919	14.77	0.0002
I19	0.11665663	0.05136097	8.34761803	5.34	0.0217
I28	-0.48625881	0.06852235	78.76176548	50.36	0.0001
I29	0.35664024	0.08157918	30.22764515	19.33	0.0001
I38	0.09952130	0.04857349	6.56566096	4.20	0.0416
I39	-0.21763053	0.07019716	15.03299774	9.61	0.0022
I42	0.10418199	0.04235428	9.46314828	6.05	0.0146
I46	-0.15283679	0.03663229	27.22529840	17.41	0.0001
I56	-0.16512786	0.05860735	12.41599558	7.94	0.0052
I71	0.17753096	0.04705058	22.26706417	14.24	0.0002
I73	-0.11602839	0.04454587	10.61105827	6.78	0.0095
I88	-0.16386954	0.06005315	11.64561257	7.45	0.0066
I129	0.25712258	0.06044613	28.29825855	18.09	0.0001
I165	0.15679218	0.05814119	11.37433461	7.27	0.0075
I171	0.27162041	0.07256786	21.89988230	14.00	0.0002

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 17 VARIABLE I83 ENTERED R SQUARE = 0.58633686
C(P) = 9.42711225

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	17	530.88460901	31.22850641	20.16	0.0001
ERROR	240	371.46035223	1.54775147		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.61110284				
I3	-0.10876384	0.02675154	25.58424404	16.53	0.0001
I15	-0.13874263	0.04112441	17.61663313	11.38	0.0009
I19	0.12053458	0.05110276	8.61064946	5.56	0.0191
I26	-0.47730434	0.06833102	75.51898190	48.79	0.0001
I29	0.25640200	0.08115364	30.16742384	19.50	0.0001
I38	0.09542371	0.04836918	6.02388055	3.89	0.0497
I39	-0.21765319	0.06983090	15.03612779	9.71	0.0021
I42	0.11796777	0.04276842	11.77955355	7.61	0.0062
I46	-0.14637725	0.03660277	24.75258024	15.99	0.0001
I56	-0.15390334	0.05860645	10.67348953	6.90	0.0092
I71	0.18857826	0.04717249	24.73471541	15.98	0.0001
I73	-0.10474024	0.04471835	6.49096004	5.49	0.0200
I83	-0.09212596	0.04900131	5.47079041	3.53	0.0613
I88	-0.15713847	0.05984701	10.67041627	6.89	0.0092
I129	0.26644264	0.06033673	30.18160201	19.50	0.0001
I165	0.15228311	0.05788754	10.71111252	6.92	0.0091
I171	0.25327546	0.07286542	18.70012559	12.08	0.0006

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 18 VARIABLE I31 ENTERED R SQUARE = 0.59447201
C(P) = 7.97916921

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	18	536.41882104	29.80104561	19.46	0.0001
ERROR	239	365.92614020	1.53107172		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.61238111				
I3	-0.10434955	0.02670812	23.37168688	15.26	0.0001
I15	-0.13186113	0.04106207	15.78874294	10.31	0.0015
I19	0.11492531	0.05091221	7.80158782	5.10	0.0249
I28	-0.47186668	0.06802199	73.67760590	48.12	0.0001
I29	0.37099453	0.08098647	32.12962147	20.99	0.0001
I31	-0.07140111	0.03755561	5.53421203	3.61	0.0585
I36	0.10447566	0.04834287	7.15090321	4.67	0.0317
I39	-0.23583434	0.07010867	17.32462100	11.32	0.0009
I42	0.13292921	0.04325723	14.45835932	9.44	0.0024
I46	-0.12157273	0.03867222	15.13106974	9.88	0.0019
I56	-0.14602124	0.05843705	9.55984846	6.24	0.0131
I71	0.19063505	0.04693009	25.26378012	16.50	0.0001
I73	-0.09724149	0.04465126	7.26157612	4.74	0.0304
I83	-0.09539005	0.04876679	5.85805450	3.83	0.0516
I86	-0.15460866	0.05953853	10.32445157	6.74	0.0100
I129	0.25300515	0.06042551	26.64192022	17.53	0.0001
I165	0.15547169	0.05759919	11.15489210	7.29	0.0074
I171	0.25276108	0.07247223	18.62396720	12.16	0.0006

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 19 VARIABLE I82 ENTERED R SQUARE = 0.60332180
C(P) = 5.00402743

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	19	544.40438215	28.65286222	19.05	0.0001
ERROR	238	357.94057909	1.50395201		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.69472796				
I3	-0.10432705	0.02647052	23.36160761	15.53	0.0001
I15	-0.13745435	0.04076910	17.09577131	11.37	0.0009
I19	0.11418850	0.05046031	7.70156443	5.12	0.0245
I28	-0.47635182	0.06744496	75.02235065	49.88	0.0001
I29	0.37260012	0.08026984	32.44003345	21.57	0.0001
I31	-0.10071622	0.03933562	9.85963642	6.56	0.0111
I36	0.11481656	0.04812252	8.56142932	5.69	0.0178
I39	-0.23390722	0.06949021	17.04017297	11.33	0.0009
I42	0.14351801	0.04311798	16.66210942	11.08	0.0010
I48	-0.15091851	0.04038660	20.99913662	13.96	0.0002
I56	-0.15767915	0.05614536	11.08800431	7.37	0.0071
I71	0.17752983	0.04665902	21.58690160	14.35	0.0002
I73	-0.10428642	0.04435955	8.31218703	5.53	0.0195
I82	0.09999271	0.04339429	7.98556111	5.31	0.0221
I83	-0.13335041	0.05106331	10.25663156	6.82	0.0096
I86	-0.15969159	0.05905009	10.99909570	7.31	0.0073
I129	0.26925171	0.06030157	29.98428577	19.94	0.0001
I165	0.16771558	0.05733354	12.86954617	8.56	0.0036
I171	0.24582225	0.07189061	17.58457935	11.69	0.0007

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 20 VARIABLE I86 ENTERED R SQUARE = 0.60990279
C(P) = 3.30433149

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	20	550.34271125	27.51713556	18.53	0.0001
ERROR	237	352.00224999	1.48524156		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.66495462				
I3	-0.11039648	0.02647990	25.81516407	17.38	0.0001
I15	-0.14242975	0.04059104	18.28681606	12.31	0.0005
I19	0.11244799	0.05015299	7.46632287	5.03	0.0259
I28	-0.45710679	0.06771163	67.68709996	45.57	0.0001
I29	0.36111189	0.07998285	30.27519373	20.38	0.0001
I31	-0.10066287	0.03909017	9.85310674	6.63	0.0106
I36	0.11774102	0.04784460	8.99470291	6.06	0.0146
I39	-0.19655865	0.07153809	11.21261152	7.55	0.0065
I42	0.15253681	0.04308577	18.61616164	12.53	0.0005
I46	-0.15306765	0.04015123	21.59134153	14.54	0.0002
I5e	-0.16914211	0.05605644	12.60665368	8.49	0.0039
I71	0.17742586	0.04656665	21.56159688	14.52	0.0002
I73	-0.09906263	0.04416009	7.47406570	5.03	0.0256
I82	0.10634299	0.04324030	8.98333191	6.05	0.0146
I83	-0.13461427	0.05074862	10.45035057	7.04	0.0085
I8e	-0.13377112	0.06690041	5.93832909	4.00	0.0467
I88	-0.11022099	0.06366390	4.44904073	3.00	0.0846
I125	0.27265942	0.05995245	30.76529900	20.71	0.0001
I165	0.18099185	0.05736135	14.78667384	9.96	0.0018
I171	0.25701584	0.07166101	19.10517427	12.86	0.0004

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 21 VARIABLE I35 ENTERED R SQUARE = 0.61519604
C(P) = 2.32745767

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	21	555.12064690	26.43432614	17.97	0.0001
ERROR	236	347.22411234	1.47128861		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.77650852				
I3	-0.11366446	0.02641754	27.23720361	18.51	0.0001
I15	-0.14581091	0.04044347	19.12410277	13.00	0.0004
I19	0.10498958	0.05008814	6.46428402	4.39	0.0371
I28	-0.44479073	0.06773647	63.43641036	43.12	0.0001
I29	0.36857545	0.07971393	31.45446187	21.38	0.0001
I31	-0.09933375	0.03891332	9.58726716	6.52	0.0113
I35	-0.09381579	0.05205697	4.77813765	3.25	0.0728
I36	0.11665938	0.04762206	9.13451817	6.21	0.0134
I39	-0.19268390	0.07123372	10.76506547	7.32	0.0073
I42	0.15699748	0.04295422	19.65493104	13.36	0.0003
I48	-0.15910982	0.04010167	23.16151422	15.74	0.0001
I56	-0.16599585	0.05780946	12.13094217	8.25	0.0045
I71	0.19718268	0.04066256	23.67511666	16.09	0.0001
I73	-0.10093495	0.04396445	7.75492734	5.27	0.0226
I82	0.10431369	0.04305144	8.63763805	5.87	0.0161
I83	-0.14233983	0.05069128	11.60070184	7.88	0.0054
I86	-0.13420037	0.06658585	5.97642416	4.06	0.0450
I88	-0.09031203	0.06433964	2.69869132	1.83	0.1817
I129	0.27836014	0.05974820	31.93466567	21.71	0.0001
I185	0.18478493	0.05713007	15.39222906	10.46	0.0014
I171	0.24785320	0.07150461	17.67742038	12.01	0.0006

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 22 VARIABLE I9 ENTERED R SQUARE = 0.62047464
C(P) = 1.36106330

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	22	559.88216614	25.44916937	17.46	0.0001
ERROR	235	342.46279510	1.45728849		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.78883532				
I3	-0.10326916	0.02691320	21.45637030	14.72	0.0002
I9	-0.05820162	0.03219914	4.76131724	3.27	0.0720
I15	-0.14255274	0.04029093	18.24240191	12.52	0.0005
I19	0.10046937	0.04991195	5.90478218	4.05	0.0453
I2e	-0.44960255	0.06746795	64.71545799	44.41	0.0001
I25	0.36666497	0.07933927	31.16225682	21.38	0.0001
I31	-0.09871320	0.03872926	9.46711235	6.50	0.0114
I35	-0.09551871	0.05181926	4.95153798	3.40	0.0665
I3e	0.12759003	0.04765178	10.44770344	7.17	0.0079
I39	-0.19516883	0.07090732	11.04038592	7.58	0.0064
I42	0.16123446	0.04281358	20.66798306	14.18	0.0002
I4e	-0.16264035	0.03995819	24.14296487	16.57	0.0001
I5e	-0.14631293	0.05855518	9.09871973	6.24	0.0131
I71	0.19059193	0.04647830	24.50496167	16.82	0.0001
I73	-0.10028393	0.04375626	7.65469508	5.25	0.0226
I82	0.11551620	0.04329204	10.37564811	7.12	0.0082
I85	-0.14325471	0.05045206	11.74912490	8.06	0.0049
I8e	-0.12779926	0.06636285	5.40445905	3.71	0.0553
I8e	-0.09975409	0.06424551	3.51335059	2.41	0.1218
I129	0.28039457	0.05947390	32.39156402	22.23	0.0001
I165	0.16472965	0.05685761	15.38301613	10.56	0.0013
I171	0.23615660	0.07145708	15.91707595	10.92	0.0011

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 23 VARIABLE I16 ENTERED R SQUARE = 0.62453374
C(P) = 1.07912714

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	23	563.54486927	24.50195084	16.92	0.0001
ERROR	234	338.80009197	1.44786364		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.62594277				
I3	-0.10053286	0.02686113	20.25110621	13.99	0.0002
I9	-0.05281586	0.03227298	3.87773476	2.68	0.1031
I15	-0.13661206	0.04033375	16.60996040	11.47	0.0008
I16	0.04647505	0.02922018	3.66270313	2.53	0.1131
I19	0.10631692	0.04988595	6.57621480	4.54	0.0341
I26	-0.43943461	0.06755260	61.26775650	42.32	0.0001
I29	0.35360240	0.07952202	28.62749032	19.77	0.0001
I31	-0.10163173	0.03664741	10.01257090	6.92	0.0091
I35	-0.10466090	0.05197026	5.67201008	4.06	0.0452
I36	0.11760438	0.04791057	8.72392598	6.03	0.0148
I39	-0.20709952	0.07107460	12.29297382	8.49	0.0039
I42	0.16596337	0.04277924	21.79670062	15.05	0.0001
I48	-0.16217402	0.03982984	24.00341537	16.58	0.0001
I58	-0.14900612	0.05839006	9.42668726	6.51	0.0114
I71	0.19338563	0.04636105	25.19240140	17.40	0.0001
I73	-0.09795929	0.04363902	7.29573390	5.04	0.0257
I82	0.11431238	0.04315846	10.15739484	7.02	0.0086
I83	-0.14948890	0.05044117	12.71672397	8.78	0.0034
I86	-0.13171158	0.06619362	5.73248972	3.96	0.0478
I88	-0.10619502	0.06416533	3.96583856	2.74	0.0995
I125	0.28031146	0.05928129	32.37233849	22.36	0.0001
I165	0.17723952	0.05686677	14.06374756	9.71	0.0021
I171	0.25378088	0.07206222	17.94668862	12.40	0.0005

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 24 VARIABLE I57 ENTERED R SQUARE = 0.62857156
C(P) = 0.60914617

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	24	567.18838009	23.63284917	16.43	0.0001
ERROR	233	335.15658115	1.43844026		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.61279087				
I3	-0.10085646	0.02679428	20.38050386	14.17	0.0002
I9	-0.05969352	0.03245676	4.86559439	3.38	0.0672
I15	-0.15859935	0.04250980	20.02241637	13.92	0.0002
I16	0.04860560	0.02915568	3.99777275	2.78	0.0966
I19	0.10971304	0.04976911	6.99018383	4.86	0.0285
I28	-0.43227619	0.06748239	59.02521249	41.03	0.0001
I29	0.33219152	0.08039636	24.55816728	17.07	0.0001
I31	-0.09748398	0.03660949	9.17001626	6.37	0.0122
I35	-0.10824472	0.05184978	6.26919041	4.36	0.0379
I36	0.11202360	0.04788297	7.87315169	5.47	0.0202
I39	-0.20161736	0.07092662	11.62329062	8.08	0.0049
I42	0.16348076	0.04266678	21.11566168	14.68	0.0002
I48	-0.16089607	0.03970813	23.61694627	16.42	0.0001
I57	0.10559264	0.06634673	3.64351082	2.53	0.1126
I58	-0.20657704	0.06852536	13.07233603	9.09	0.0029
I71	0.16399494	0.04658511	22.43929857	15.60	0.0001
I73	-0.08377855	0.04440000	5.12143376	3.56	0.0604
I82	0.11476263	0.04301871	10.23712636	7.12	0.0082
I83	-0.16179423	0.05086779	14.55231501	10.12	0.0017
I86	-0.12770133	0.06602596	5.38087972	3.74	0.0543
I88	-0.11387803	0.06413811	4.53460363	3.15	0.0771
I129	0.27447305	0.05920163	30.91668723	21.49	0.0001
I165	0.17362231	0.05672696	13.47390035	9.37	0.0025
I171	0.26149303	0.07201049	18.96795619	13.19	0.0003

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 25 VARIABLE I52 ENTERED R SQUARE = 0.63268070
C(P) = 0.38664206

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	25	571.07671002	22.84306840	16.00	0.0001
ERROR	232	331.26825122	1.42788039		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.63297390				
I3	-0.09864878	0.02672925	19.44919672	13.62	0.0003
I9	-0.05744621	0.03236607	4.49815686	3.15	0.0772
I15	-0.17078542	0.04299244	22.53249554	15.78	0.0001
I16	0.05147654	0.02910052	4.46795765	3.13	0.0782
I19	0.11112171	0.04959344	7.16871388	5.02	0.0260
I26	-0.45111158	0.06819600	62.48013591	43.76	0.0001
I29	0.35286825	0.08107481	27.04662164	18.94	0.0001
I31	-0.09527143	0.03649087	8.74785889	6.13	0.0140
I35	-0.10496792	0.05169680	5.88902239	4.12	0.0434
I36	0.10082922	0.04018676	6.25165511	4.38	0.0375
I39	-0.20567345	0.07071265	12.10307666	8.48	0.0039
I42	0.15938011	0.04258444	20.00130266	14.01	0.0002
I46	-0.16093200	0.03956212	23.62748914	16.55	0.0001
I52	0.14706153	0.08911759	3.88832992	2.72	0.1002
I57	0.11864381	0.06657420	4.53492516	3.18	0.0761
I58	-0.20680215	0.06827351	13.10079129	9.17	0.0027
I71	0.17522135	0.04671732	20.06676192	14.07	0.0002
I73	-0.08776369	0.04430259	5.60354999	3.92	0.0488
I82	0.12112462	0.04303357	11.31210388	7.92	0.0055
I83	-0.16264528	0.05068336	14.70426675	10.30	0.0015
I88	-0.12432334	0.06581500	5.09503639	3.57	0.0601
I88	-0.11394562	0.06390227	4.54000195	3.18	0.0759
I129	0.27132751	0.05901491	30.18255198	21.14	0.0001
I165	0.16550236	0.05673413	12.15096393	8.51	0.0039
I171	0.25734626	0.07176963	16.34893774	12.65	0.0004

REGRESSION OF GRADE ON NON-SOCIAL ITEMS

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 26 VARIABLE I26 ENTERED R SQUARE = 0.63973060
C(P) = -1.46434036

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	26	577.25786696	22.20022565	15.76	0.0001
ERROR	231	325.08709428	1.40730344		
TOTAL	257	902.34496124			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.61136054				
I3	-0.09414406	0.02662287	17.59802154	12.50	0.0005
I9	-0.06437324	0.03230156	5.58922297	3.97	0.0475
I15	-0.17150333	0.04266291	22.72086376	16.14	0.0001
I16	0.05612940	0.02897526	5.28097273	3.75	0.0539
I19	0.10434333	0.04934092	6.29365050	4.47	0.0355
I26	-0.16673004	0.07955598	6.16115694	4.39	0.0372
I28	-0.43103670	0.06837710	55.92356779	39.74	0.0001
I29	0.40206024	0.08384116	32.36348196	23.00	0.0001
I31	-0.10324300	0.03840136	10.17221970	7.23	0.0077
I35	-0.11401269	0.05150328	6.89642671	4.90	0.0276
I38	0.09238063	0.04800787	5.21104437	3.70	0.0555
I39	-0.21188207	0.07026001	12.79852038	9.09	0.0029
I42	0.16394709	0.04233261	21.10790522	15.00	0.0001
I46	-0.15648554	0.03933329	22.27489884	15.83	0.0001
I52	0.24063602	0.09910132	8.29755508	5.90	0.0159
I57	0.13533041	0.06657062	5.81585113	4.13	0.0432
I58	-0.21168476	0.06781981	13.71051593	9.74	0.0020
I71	0.18095693	0.04646016	21.34896257	15.17	0.0001
I73	-0.08724314	0.04398292	5.53709867	3.93	0.0485
I82	0.12470397	0.04275649	11.97138031	8.51	0.0039
I83	-0.15922216	0.05034334	14.07701804	10.00	0.0018
I86	-0.11434582	0.06551227	4.28729236	3.05	0.0822
I88	-0.12125719	0.06353601	5.12581526	3.64	0.0578
I129	0.28299696	0.05872263	28.22766659	20.06	0.0001
I165	0.17533071	0.05651875	13.54311706	9.62	0.0022
I171	0.26313956	0.07132403	19.15527074	13.61	0.0003

NO OTHER VARIABLES MET THE 0.1500 SIGNIFICANCE LEVEL FOR ENTRY

CROSS-VALIDATION--SOCIAL & NONSOCIAL ITEMS ON GRADE

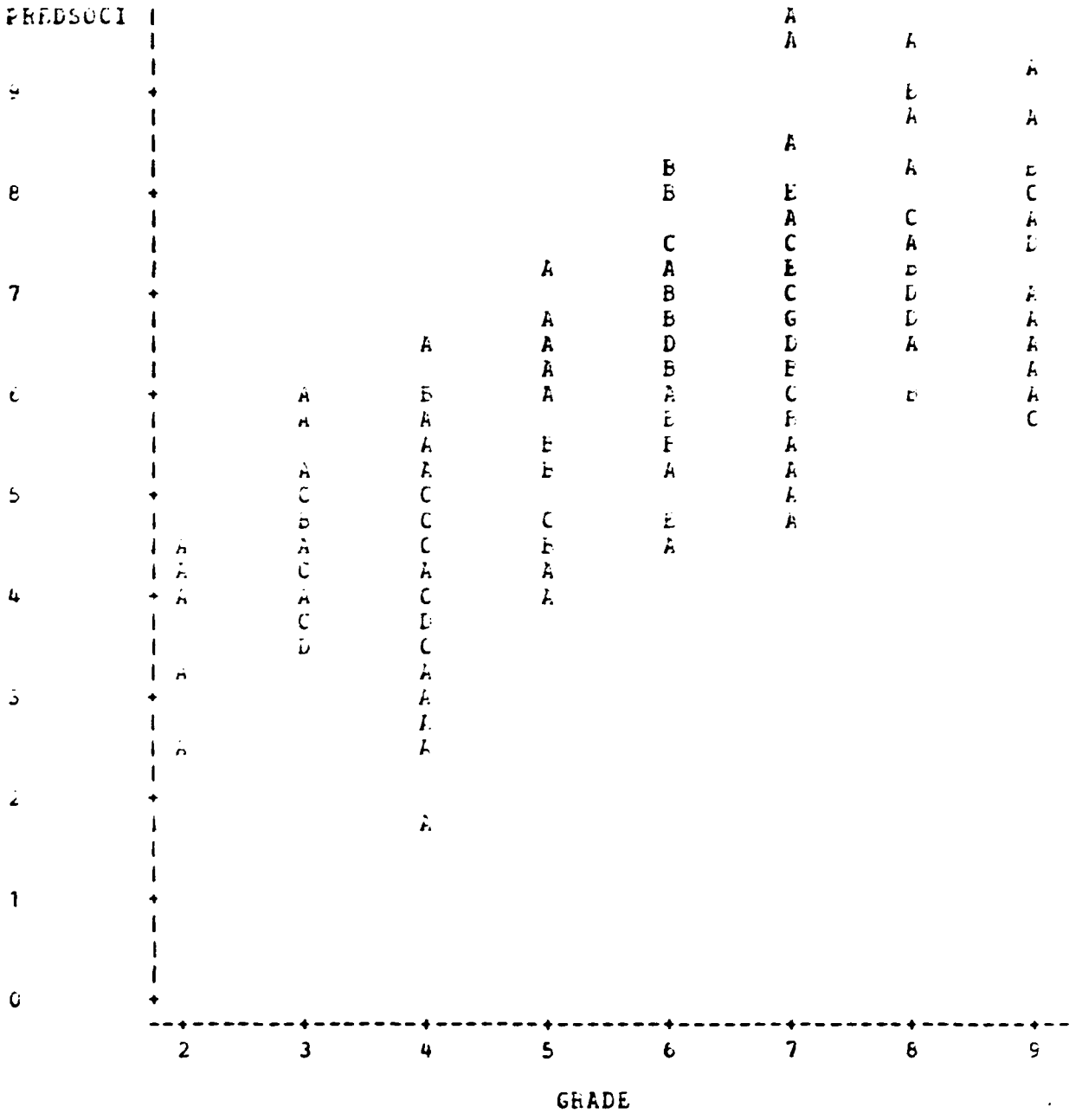
VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMU..
PREDSOCI	187	6.003555	1.604659	1122.665	1.656447	9.63470[illegible]
PREDNSI	186	5.994705	1.357673	1115.015	1.550495	8.974512
GRADE	200	5.915000	1.956816	1183.000	2.000000	9.000000

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0
/ NUMBER OF OBSERVATIONS

	PREDSOCI	PREDNSI	GRADE
PREDSOCI	1.00000	0.58028	0.75208
	0.0000	0.0001	0.0001
	187	177	186
PREDNSI	0.58028	1.00000	0.58865
	0.0001	0.0000	0.0001
	177	186	186
GRADE	0.75208	0.58865	1.00000
GRADE	0.0001	0.0001	0.0000
	186	186	200

CROSS-VALIDATION--SOCIAL & NONSOCIAL ITEMS ON GRADE

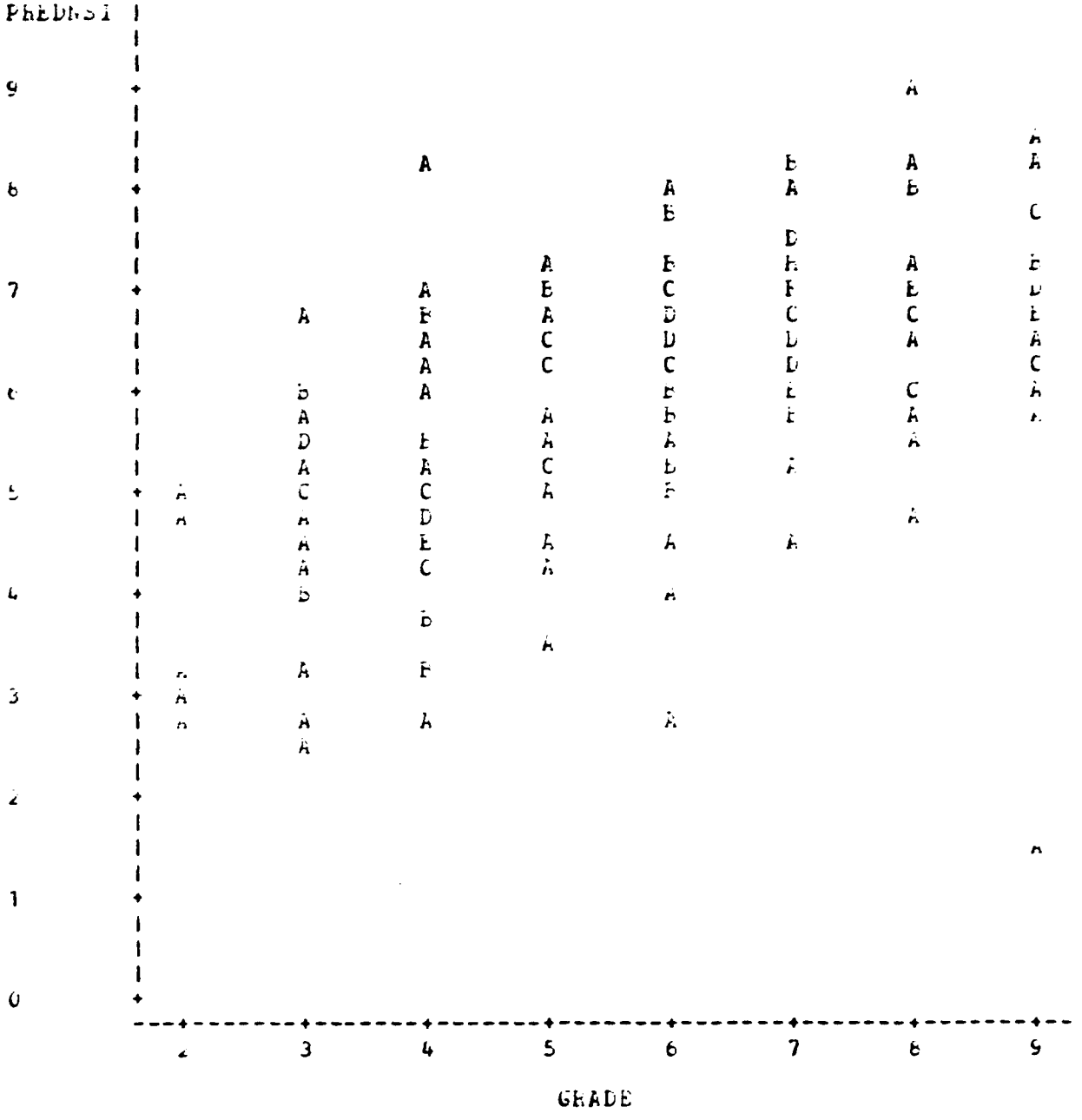
PLOT OF PREDSOCI*GRADE LEGEND: A = 1 OBS, B = 2 OBS, ETC.



NOTE: 15 OBS HAD MISSING VALUES

CROSS-VALIDATION--SOCIAL & NONSOCIAL ITEMS ON GRADE

PLOT OF PREDNSI*GRADE LEGEND: A = 1 OBS, B = 2 OBS, ETC.



NOTE: 15 OBS HAD MISSING VALUES

APPENDIX H

CLUSTER ANALYSIS--NONSOCIAL SCALES

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

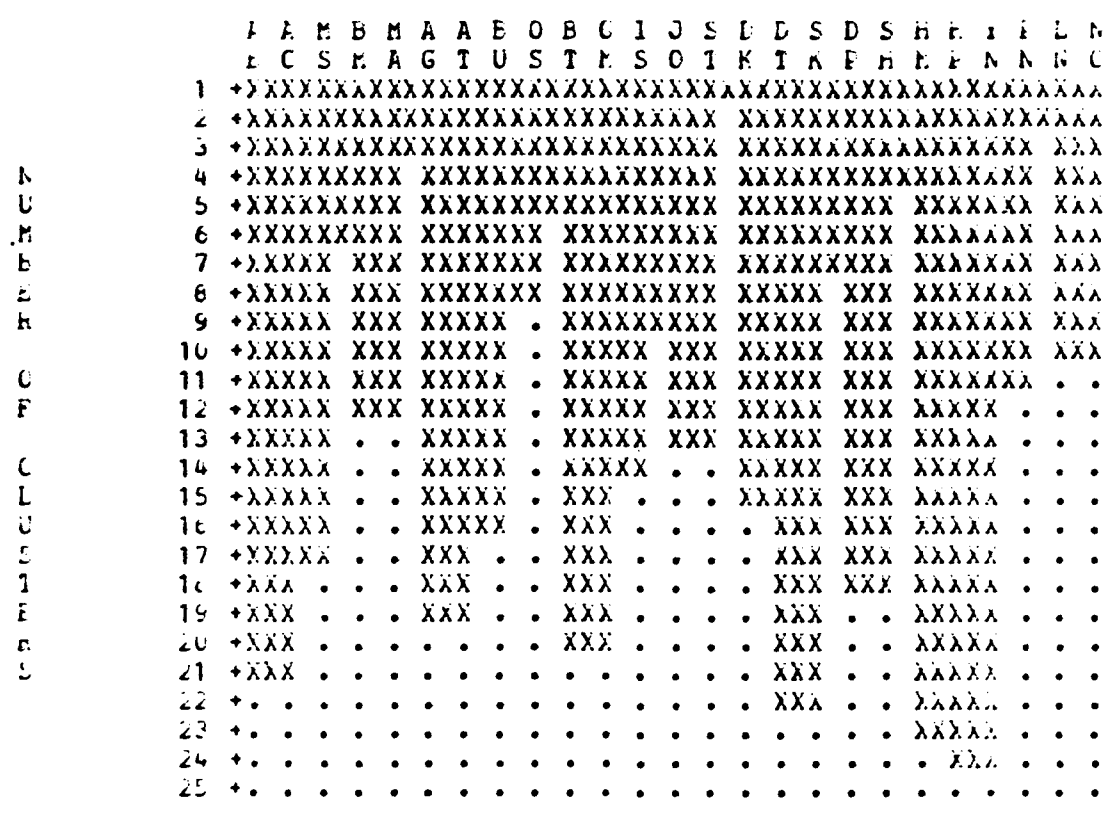
EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
0.460877	0.229391	0.607515	0.607515
0.231487	0.176248	0.305139	0.912654
0.055239	0.044215	0.072815	0.985469
0.011024	.	0.014531	1.000000

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 0.435496
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 0.870992

NCL	FREQ	RMSSTD	SPRSQ	RSQ	ERSQ	CCC
10	2	0.250023	0.013733	0.914955	0.935264	-1.80[illegible]
9	5	0.192661	0.016358	0.898597	0.921263	-1.7072
8	4	0.2217	0.023355	0.875242	0.904194	-1.6223
7	5	0.213199	0.026014	0.849228	0.883010	-1.6012
6	5	0.255183	0.041218	0.808010	0.856059	-2.1225
5	9	0.247565	0.042722	0.765288	0.820006	-1.6616
4	9	0.262555	0.065139	0.700148	0.767560	-1.7466
3	14	0.318385	0.124552	0.575596	0.682576	-2.2924
2	11	0.364805	0.157465	0.418111	0.494752	-1.1590
1	25	0.435496	0.418111	0.000000	0.000000	0.0000

NAME OF OBSERVATION OR CLUSTER



CLUSTER ANALYSIS OF SOCIAL SCALES

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
2.404326	1.858614	0.592435	0.592435
0.545712	0.184423	0.134465	0.726900
0.361288	0.140037	0.089023	0.815923
0.221251	0.069473	0.054517	0.870440
0.151778	0.048604	0.037399	0.907839
0.103174	0.045066	0.025422	0.933262
0.058106	0.017995	0.014317	0.947579
0.040110	0.005499	0.009883	0.957462
0.034612	0.001172	0.008529	0.965991
0.033440	0.009623	0.008240	0.974231
0.023817	0.007309	0.005868	0.980099
0.016508	0.001718	0.004068	0.984167
0.014790	0.001424	0.003644	0.987811
0.013366	0.004857	0.003293	0.991104
0.008509	0.000757	0.002097	0.993201
0.007752	0.002037	0.001910	0.995111
0.005715	0.001079	0.001408	0.996519
0.004635	0.001367	0.001142	0.997661
0.003269	0.001101	0.000805	0.998467
0.002168	0.000329	0.000534	0.999001
0.001839	0.000562	0.000453	0.999454
0.001277	0.000606	0.000315	0.999769
0.000670	0.000402	0.000165	0.999934
0.000268	0.000268	0.000066	1.000000
0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	1.000000
0.000000	0.000000	0.000000	1.000000
-.000000	0.000000	-.000000	1.000000
-.000000	0.000000	-.000000	1.000000
-.000000	0.000000	-.000000	1.000000
-.000000	0.000000	-.000000	1.000000
-.000000	.	-.000000	1.000000

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 0.345491
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 2.01454

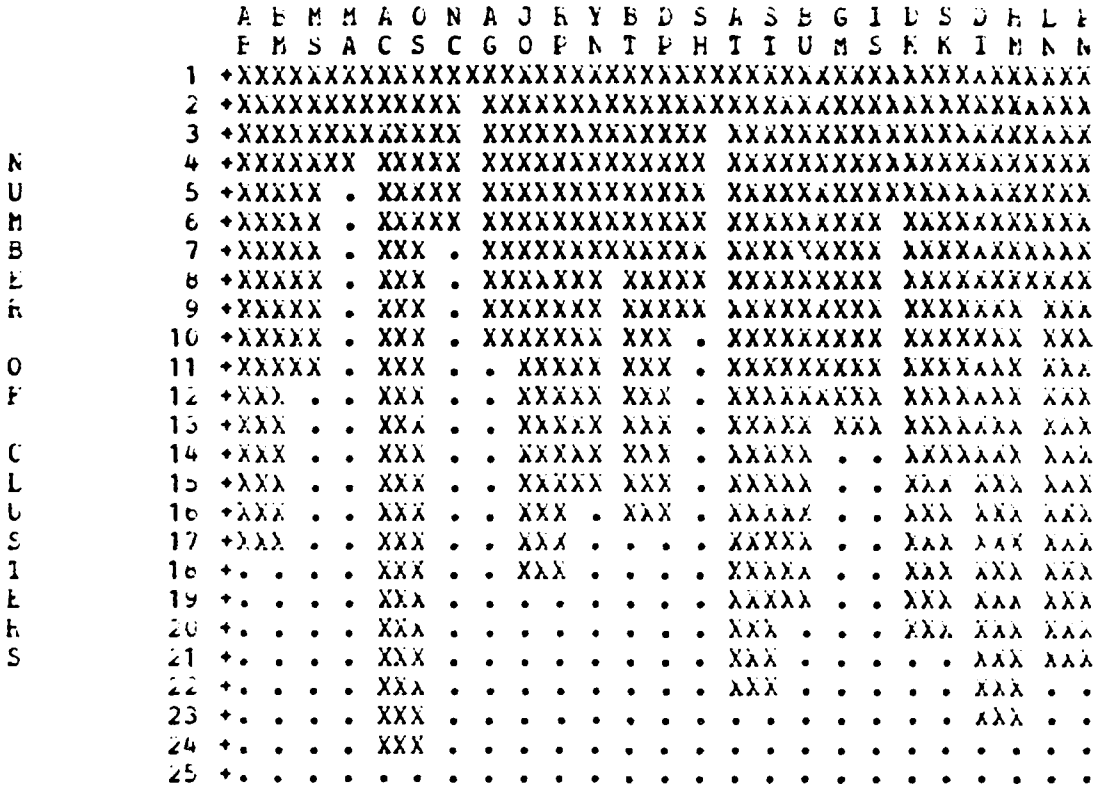
CLUSTER ANALYSIS OF SOCIAL SCALES

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

NCL	FREQ	RMSSTD	SPRSQ	RSQ	ERSQ	CCC
10	4	0.204693	0.021413	0.631798	0.678461	-2.0616
9	3	0.213043	0.021463	0.810335	0.857319	-2.4178
8	6	0.181755	0.025553	0.764782	0.833026	-2.2314
7	7	0.228834	0.034110	0.750672	0.804815	-2.2431
6	3	0.235053	0.035502	0.715170	0.771394	-1.8356
5	11	0.210387	0.049040	0.666130	0.730385	-1.9053
4	4	0.299293	0.062692	0.603438	0.677537	-2.0173
3	7	0.312493	0.072146	0.531292	0.603603	-1.5325
2	18	0.242529	0.084870	0.446421	0.475646	-0.4660
1	25	0.345491	0.446421	0.000000	0.000000	0.0000

CLUSTER ANALYSIS OF SOCIAL SCALES

NAME OF OBSERVATION OR CLUSTER



WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
32.03499	18.29771	0.39466	0.39466
13.73728	6.67929	0.16924	0.56390
7.05799	1.46380	0.08695	0.65086
5.59419	1.71958	0.06892	0.71978
3.87461	0.86375	0.04773	0.76751
3.01086	0.79965	0.03709	0.80460
2.21121	0.21260	0.02724	0.83185
1.99862	0.46704	0.02462	0.85647
1.53157	0.19501	0.01887	0.87534
1.33656	0.06218	0.01647	0.89180
1.27438	0.19066	0.01570	0.90750
1.08372	0.07636	0.01335	0.92085
1.00735	0.16323	0.01241	0.93327
0.84413	0.11245	0.01040	0.94366
0.73167	0.05221	0.00901	0.95268
0.67946	0.02746	0.00837	0.96105
0.65200	0.03813	0.00803	0.96908
0.61387	0.14743	0.00756	0.97665
0.46644	0.03545	0.00575	0.98239
0.43099	0.09800	0.00531	0.98770
0.33299	0.05723	0.00410	0.99180
0.27576	0.02189	0.00340	0.99520
0.25387	0.11818	0.00313	0.99833
0.13568	0.13568	0.00167	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
0.00000	0.00000	0.00000	1.00000

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

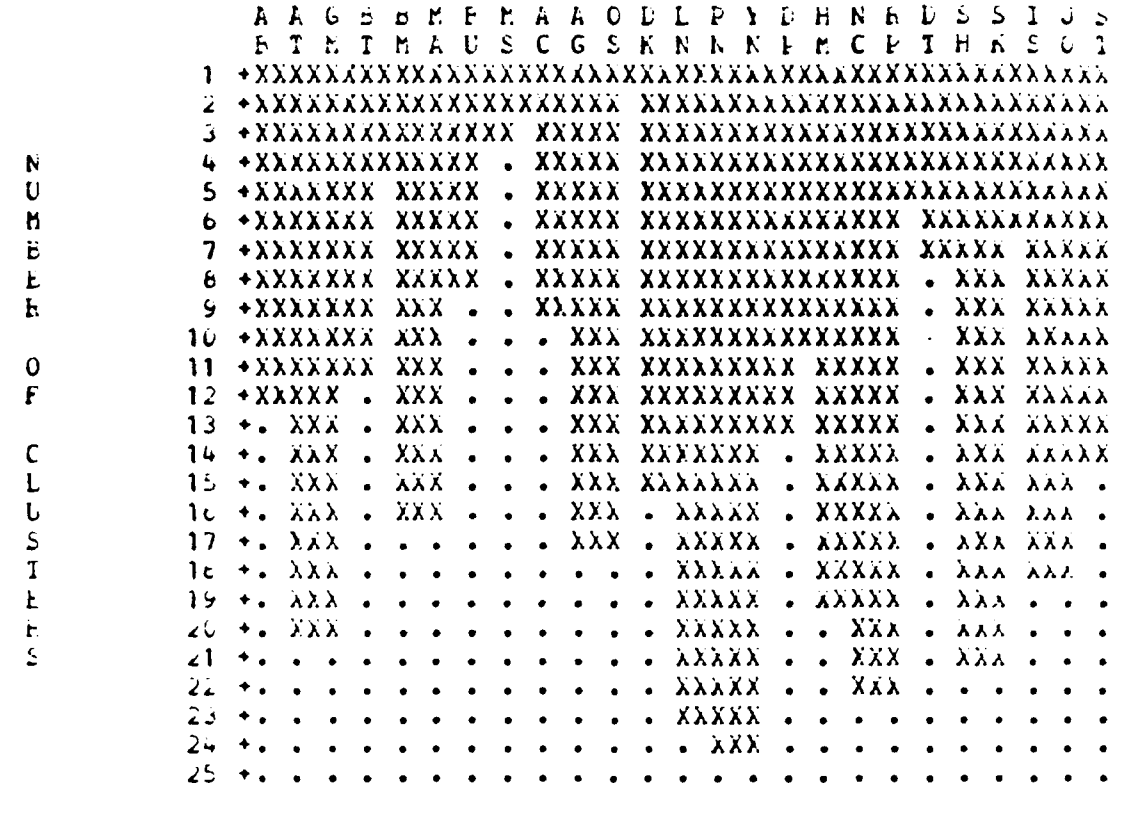
EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
-0.00000	0.00000	-0.00000	1.00000
-0.00000	.	-0.00000	1.00000

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 0.971514
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 9.00945

NCL	FREQ	RMSSTD	SPRSQ	RSQ	ERSQ	CCC
10	6	0.573844	0.026552	0.753367	0.616626	-2.9634
9	3	0.701217	0.026826	0.726539	0.786826	-2.6214
8	3	0.706165	0.026871	0.699669	0.753327	-1.952[illegible]
7	3	0.686671	0.030380	0.669288	0.715300	-1.5[illegible]09
6	6	0.730216	0.040227	0.629062	0.671524	-1.3[illegible]3[illegible]
5	14	0.681988	0.047467	0.581594	0.619[illegible]84	-1.2054
4	7	0.798707	0.060904	0.520690	0.557001	-0.971[illegible]
3	8	0.878237	0.069375	0.451315	0.473772	-0.51[illegible]
2	11	0.990675	0.151503	0.299812	0.334557	-0.6671
1	25	0.971514	0.299812	0.000000	0.000000	0.000[illegible]

NAME OF OBSERVATION OR CLUSTER



CLUSTER ANALYSIS OF SOCIAL ITEMS

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
10.62250	4.48452	0.27950	0.27950
6.13797	1.06823	0.16150	0.44101
5.06974	2.62930	0.13340	0.57440
2.44044	0.68686	0.06421	0.63862
1.75358	0.17274	0.04614	0.68476
1.58084	0.15050	0.04160	0.72635
1.43034	0.24907	0.03764	0.76399
1.18127	0.12836	0.03108	0.79507
1.05291	0.05806	0.02770	0.82276
0.99485	0.24075	0.02618	0.84895
0.75410	0.00649	0.01984	0.86880
0.74761	0.06216	0.01967	0.88847
0.68545	0.15767	0.01804	0.90650
0.52778	0.03091	0.01388	0.92038
0.49687	0.07621	0.01307	0.93345
0.42066	0.05041	0.01106	0.94452
0.36400	0.03934	0.00958	0.95410
0.32471	0.01331	0.00854	0.96264
0.31141	0.03410	0.00819	0.97083
0.27731	0.00911	0.00730	0.97813
0.26820	0.05553	0.00706	0.98519
0.21267	0.02656	0.00560	0.99078
0.18611	0.02192	0.00490	0.99568
0.16419	0.16419	0.00432	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000
0.00000	0.00000	0.00000	1.00000

CLUSTER ANALYSIS OF SOCIAL ITEMS

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
0.00000	0.00000	0.00000	1.00000

CLUSTER ANALYSIS OF SOCIAL ITEMS

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
-0.00000	0.00000	-0.00000	1.00000

CLUSTER ANALYSIS OF SOCIAL ITEMS

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

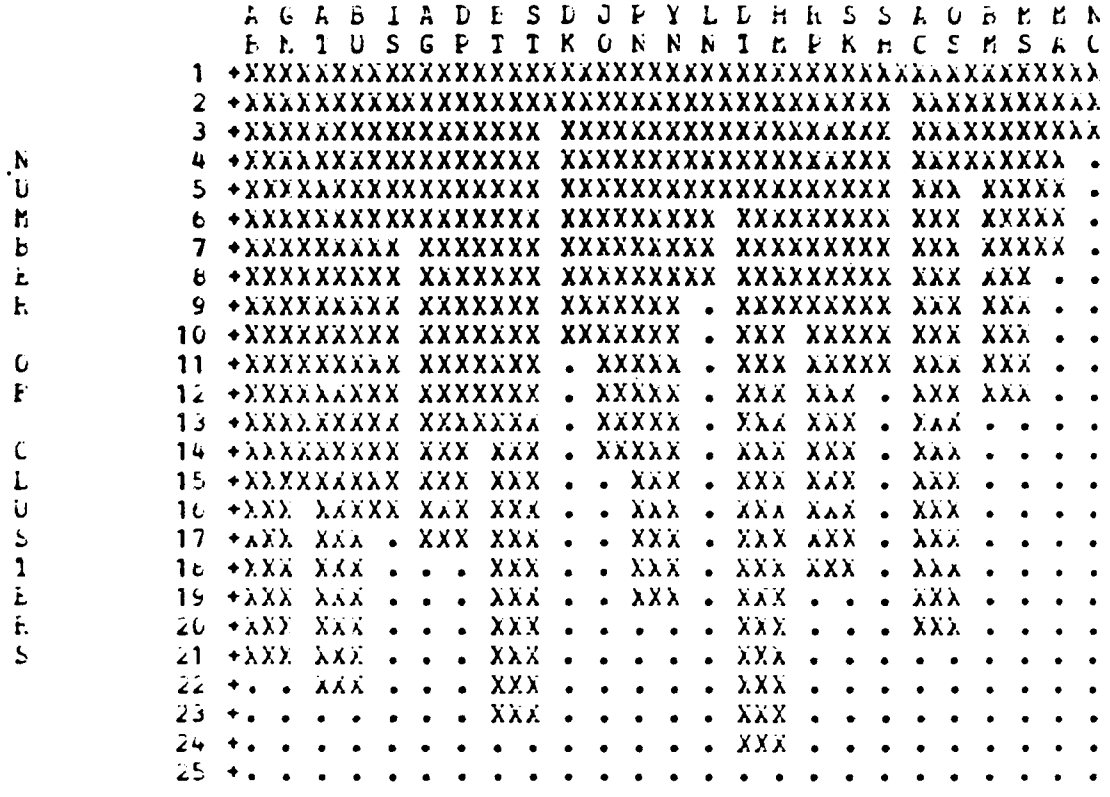
EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
-0.00000	0.00000	-0.00000	1.00000
-0.00000	0.00000	-0.00000	1.00000
-0.00000	0.00000	-0.00000	1.00000
-0.00000	0.00000	-0.00000	1.00000
-0.00000	0.00000	-0.00000	1.00000
-0.00000	0.00000	-0.00000	1.00000
-0.00000	0.00000	-0.00000	1.00000
-0.00000	0.00000	-0.00000	1.00000
-0.00000	.	-0.00000	1.00000

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 0.542782
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 0.76462

NCL	FREQ	RMSSTD	SPRSQ	RSQ	ERSQ	CCC
10	4	0.405506	0.026272	0.707613	0.764444	-3.2131
9	5	0.410296	0.041802	0.666011	0.750234	-2.8962
8	5	0.456803	0.045199	0.620813	0.712013	-2.9193
7	3	0.509532	0.046670	0.574142	0.668991	-2.8809
6	9	0.39382	0.048479	0.525663	0.619946	-2.7759
5	10	0.460598	0.059637	0.465826	0.562875	-2.8196
4	5	0.549834	0.062367	0.383459	0.493749	-2.8062
3	6	0.60314	0.086218	0.297241	0.394784	-2.2722
2	19	0.457341	0.086949	0.210292	0.255612	-1.0666
1	25	0.542782	0.210292	0.000000	0.000000	0.0000

CLUSTER ANALYSIS OF SOCIAL ITEMS

NAME OF OBSERVATION OR CLUSTER



CLUSTER ANALYSIS OF NON-SOCIAL SCALES FOR RATING AND GROUP

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

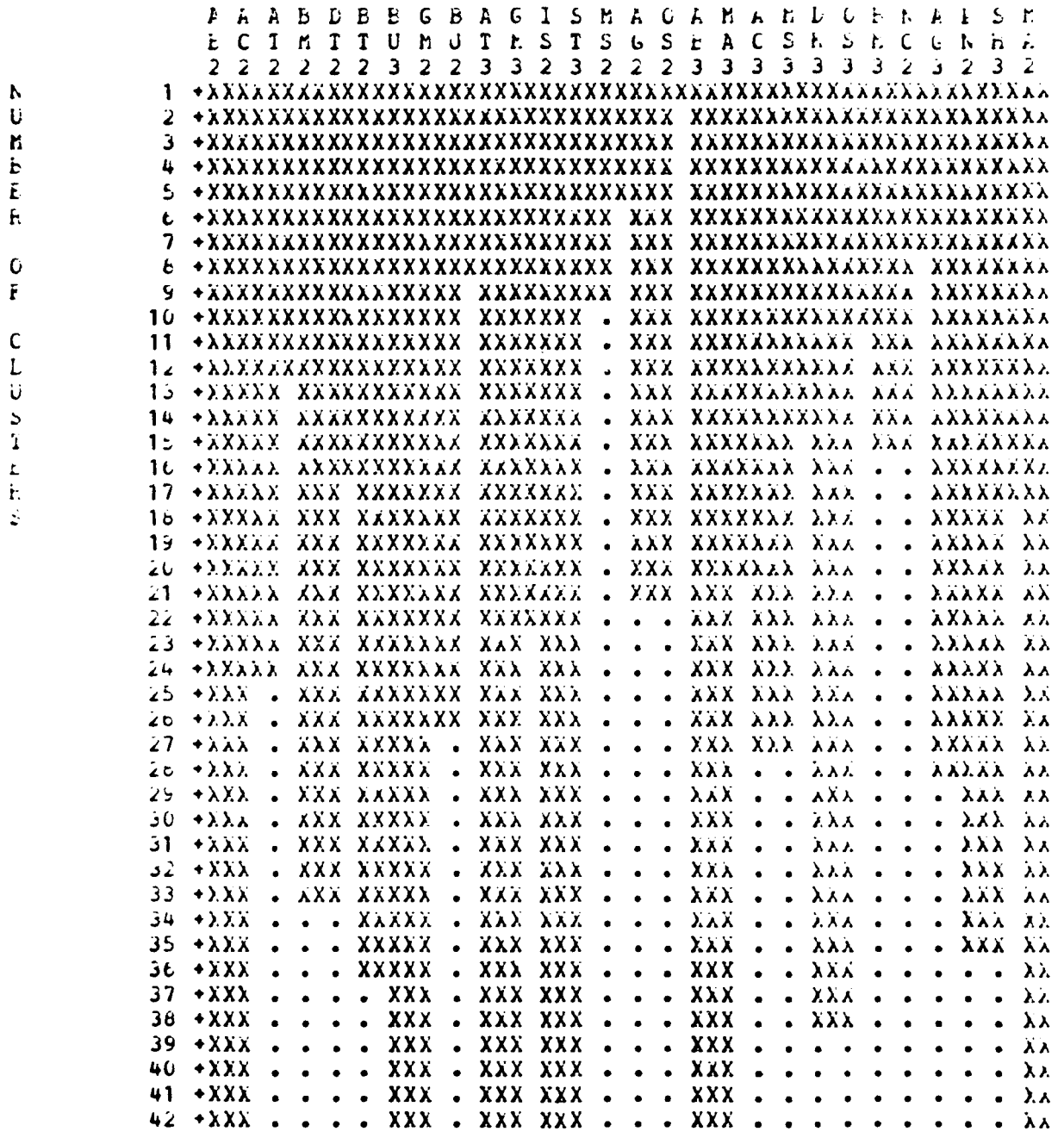
EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
0.621182	0.292058	0.599746	0.599746
0.329124	0.257176	0.317766	0.917513
0.071948	0.058460	0.069465	0.986978
0.013488	.	0.013022	1.000000

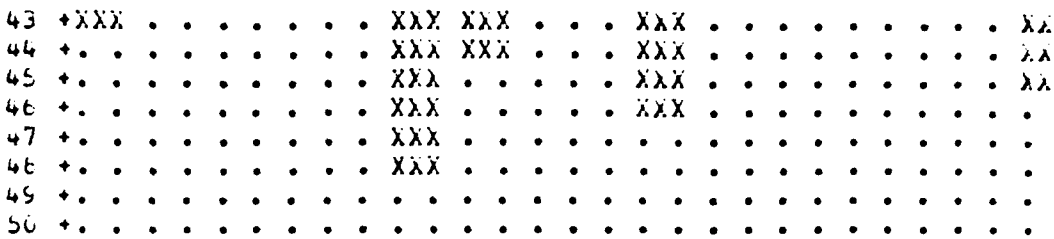
ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 0.508657
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 1.01771

NCL	FREQ	RMSSTD	SPRSQ	RSQ	ERSQ	CCC
10	8	0.275415	0.017613	0.863527	0.890147	-2.1576
9	5	0.271247	0.016907	0.844620	0.876690	-2.3413
8	14	0.275132	0.028114	0.816507	0.860616	-2.6471
7	13	0.290136	0.028171	0.788336	0.840963	-3.0445
6	10	0.283965	0.034390	0.753946	0.816256	-2.6367
5	16	0.331202	0.047436	0.706508	0.782645	-2.6531
4	16	0.341703	0.051619	0.654889	0.735907	-2.6606
3	16	0.345586	0.082634	0.572255	0.653934	-2.4896
2	34	0.438571	0.202212	0.370043	0.468073	-2.0977
1	50	0.506657	0.370043	0.000000	0.000000	0.0000

CLUSTER ANALYSIS OF NON-SOCIAL SCALES FOR RATING AND GROUP

NAME OF OBSERVATION OR CLUSTER

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44 +. . . . . XXX XXX . . . XXX XX
45 +. . . . . XXX . . . . . XXX XX
46 +. . . . . XXX . . . . . XXX . . . . . .
47 +. . . . . XXX . . . . . .
48 +. . . . . XXX . . . . . .
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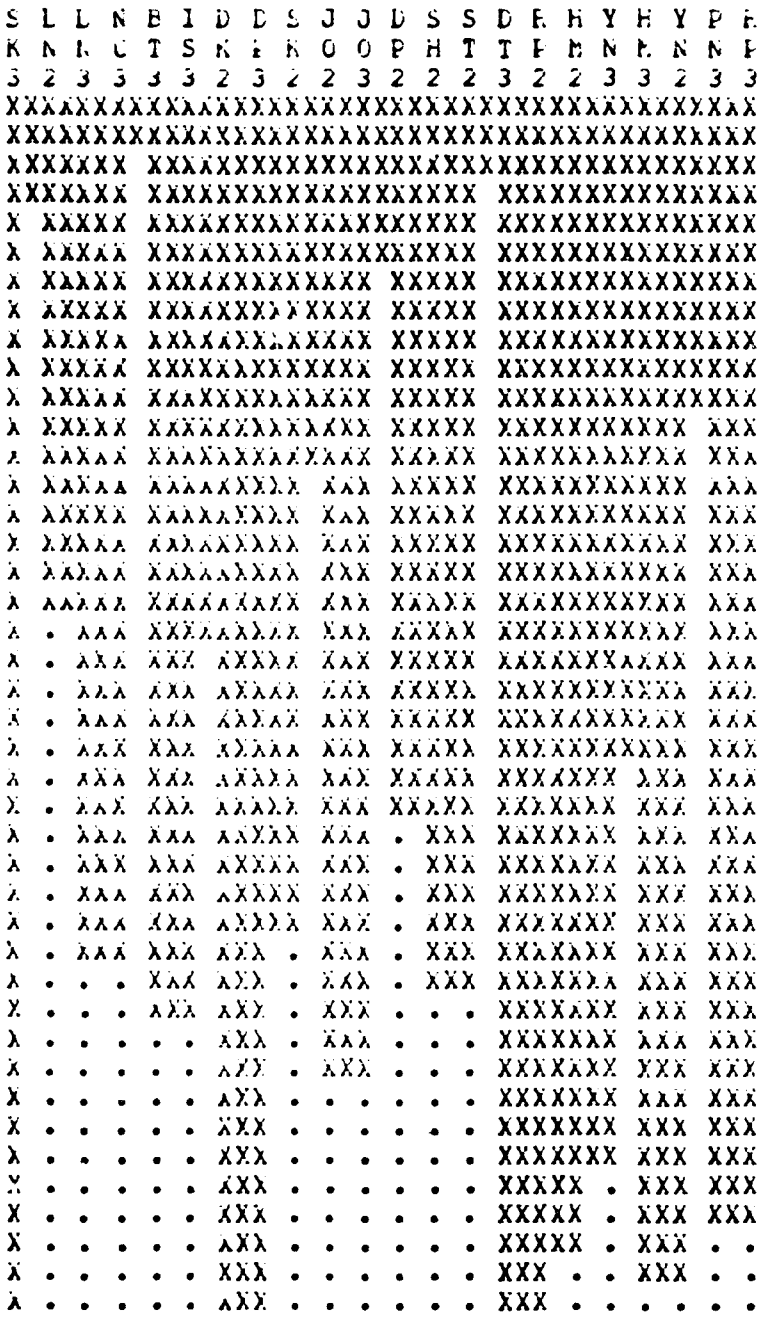
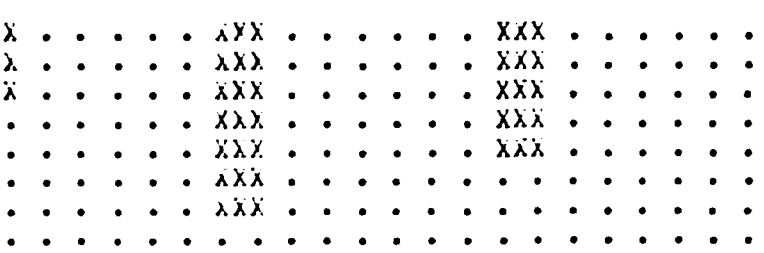
50 +. . . . . .

CLUSTER ANALYSIS OF NON-SOCIAL SCALES FOR RATING AND GROUP

NAME OF OBSERVATION OR CLUSTER





CLUSTER ANALYSIS OF SOCIAL SCALES FOR RATING AND GROUP

WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

EIGENVALUES OF THE COVARIANCE MATRIX

EIGENVALUE	DIFFERENCE	PROPORTION	CUMULATIVE
5.614075	5.013003	0.668064	0.668064
0.601072	0.087510	0.073666	0.761732
0.513562	0.192873	0.062942	0.824674
0.320688	0.052271	0.039304	0.863978
0.268417	0.060342	0.032897	0.896875
0.208075	0.082211	0.025502	0.922377
0.125864	0.043879	0.015426	0.937803
0.081985	0.018309	0.010048	0.947851
0.063676	0.005355	0.007804	0.955655
0.058321	0.008271	0.007148	0.962803
0.050050	0.007947	0.006134	0.968937
0.042103	0.000438	0.005160	0.974098
0.041665	0.009123	0.005107	0.979204
0.032542	0.003195	0.003988	0.983192
0.029348	0.004209	0.003597	0.986789
0.025139	0.005264	0.003081	0.989870
0.019874	0.004084	0.002433	0.992304
0.015790	0.005005	0.001933	0.994238
0.010785	0.002546	0.001319	0.995558
0.008238	0.000652	0.001007	0.996565
0.007586	0.001941	0.000927	0.997490
0.005645	0.001528	0.000689	0.998180
0.004097	0.001050	0.000502	0.998682
0.003047	0.000588	0.000373	0.999055
0.002459	0.000925	0.000301	0.999357
0.001534	0.000411	0.000188	0.999545
0.001123	0.000436	0.000138	0.999682
0.000687	0.000062	0.000084	0.999767
0.000625	0.000051	0.000077	0.999843
0.000573	0.000282	0.000070	0.999913
0.000292	0.000051	0.000036	0.999949
0.000240	0.000108	0.000029	0.999979
0.000133	0.000091	0.000016	0.999995
0.000041	.	0.000005	1.000000

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 0.489675
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 2.85644

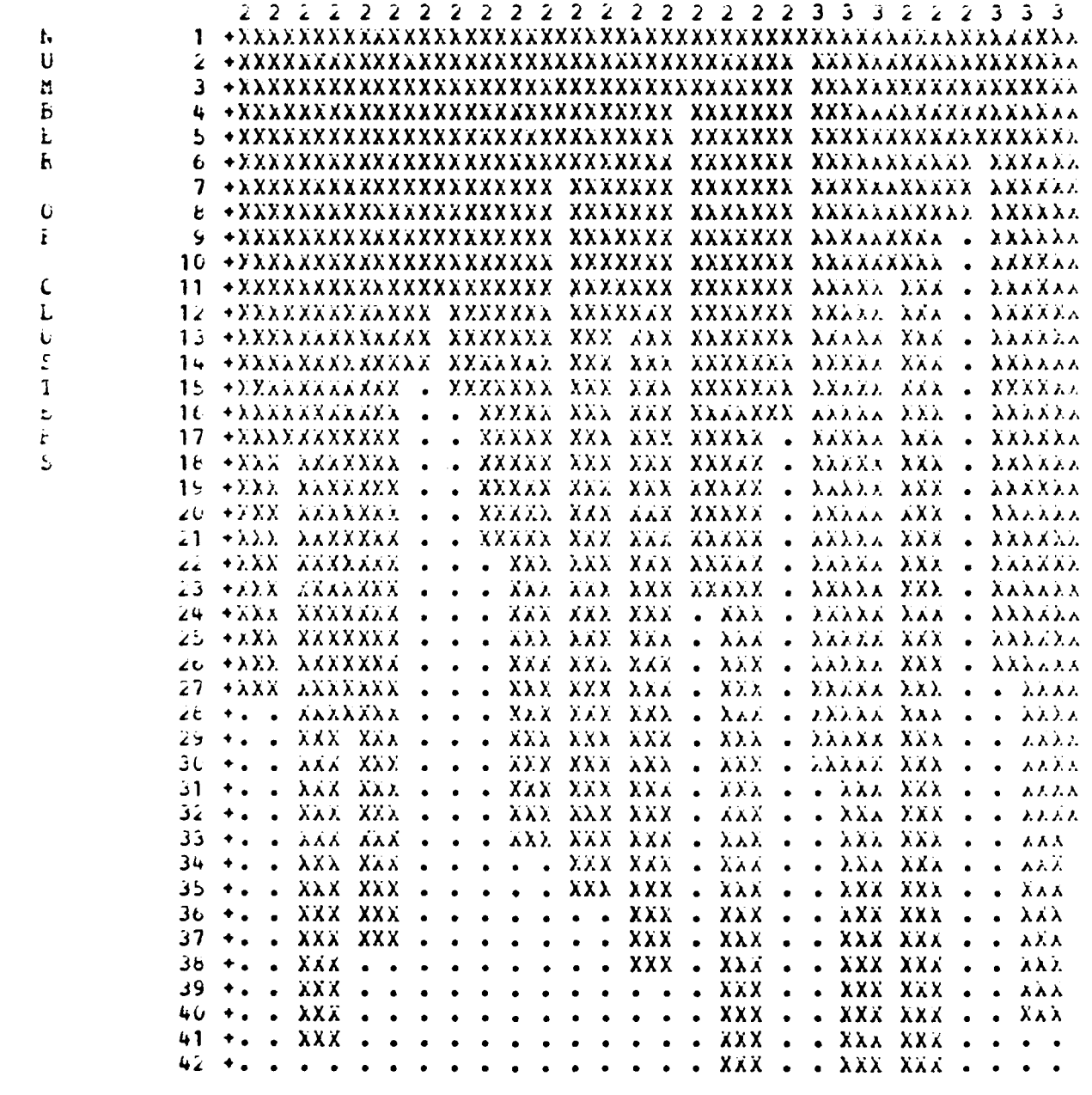
CLUSTER ANALYSIS OF SOCIAL SCALES FOR RATING AND GROUP

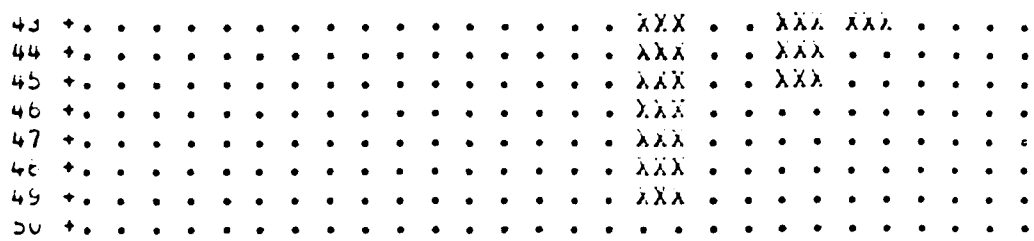
WARD'S MINIMUM VARIANCE HIERARCHICAL CLUSTER ANALYSIS

NCL	FREQ	RMSSTD	SPRSQ	RSQ	ERSQ	CCC
10	5	0.261286	0.015080	0.797589	0.816386	-1.3769
9	11	0.268745	0.016588	0.779001	0.804010	-1.5500
8	6	0.317236	0.019569	0.759432	0.787905	-1.6743
7	12	0.294659	0.019800	0.739632	0.769540	-1.4446
6	15	0.299011	0.023859	0.715773	0.747911	-1.4702
5	18	0.324407	0.028134	0.687639	0.721397	-1.4632
4	20	0.349976	0.039593	0.648047	0.687020	-1.5920
3	19	0.338612	0.054618	0.593429	0.637576	-0.9645
2	31	0.349698	0.080932	0.512497	0.527746	-0.5414
1	50	0.489875	0.512497	0.000000	0.000000	0.0000

CLUSTER ANALYSIS OF SOCIAL SCALES FOR RATING AND GROUP

NAME OF OBSERVATION OR CLUSTER

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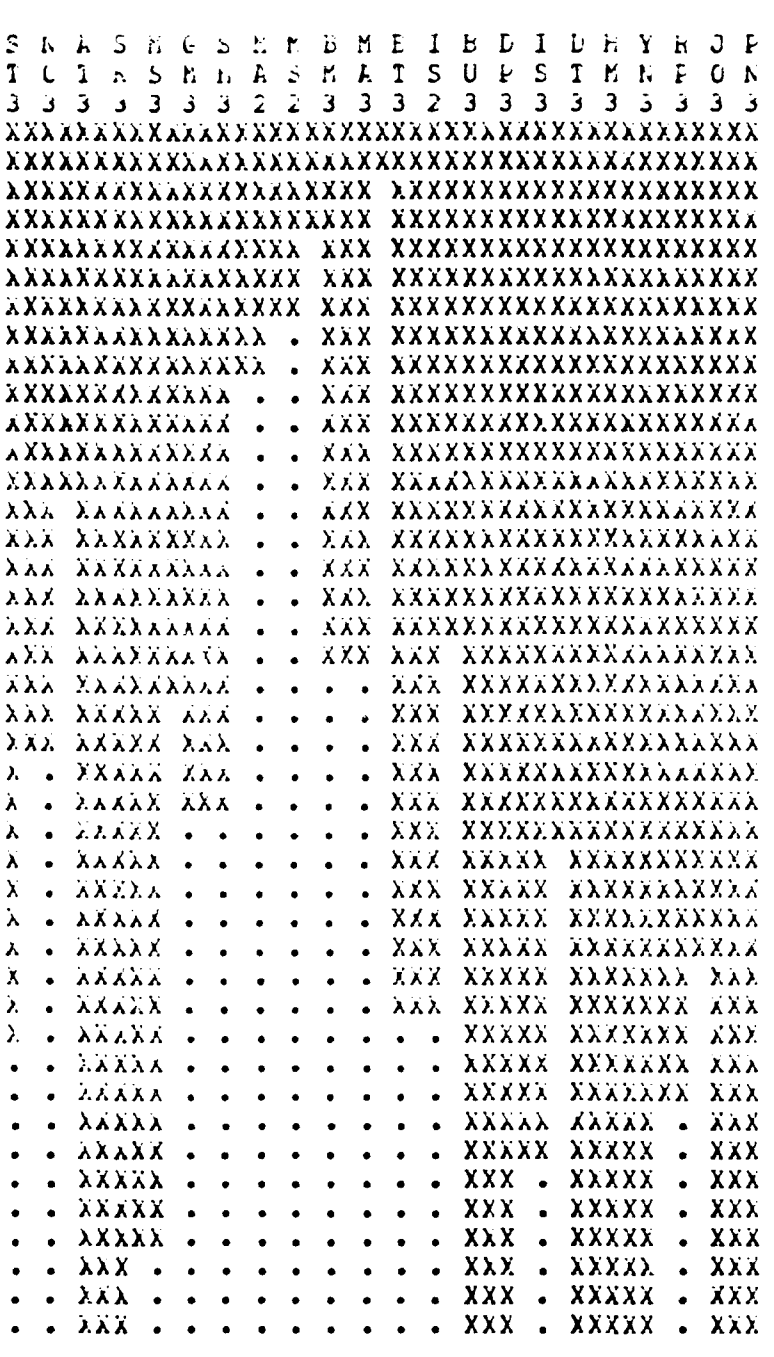
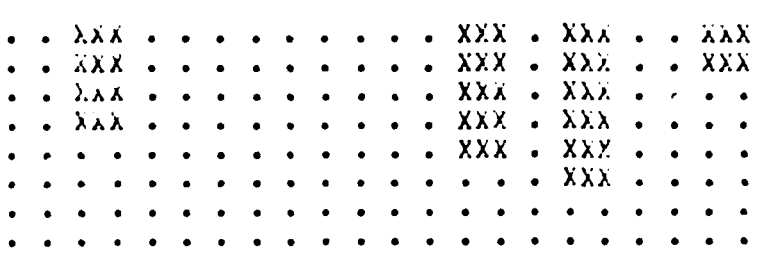
44 +. . . . . XXX . . XXX . . . . .
45 +. . . . . XXX . . XXX . . . . .
46 +. . . . . XXX . . . . . .
47 +. . . . . XXX . . . . . .
48 +. . . . . XXX . . . . . .
49 +. . . . . XXX . . . . . .
50 +. . . . .

CLUSTER ANALYSIS OF SOCIAL SCALES FOR RATING AND GROUP

NAME OF OBSERVATION OR CLUSTER





APPENDIX I

ANALYSIS OF CONTACTS GRID

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
GRADE		6.02	1.90
C1		0.85	0.73
C2		0.83	0.72
C3		0.80	0.71
C4		0.85	0.74
C5		0.98	0.74
C6		0.66	0.60
C7		0.72	0.68
C8		0.64	0.59
C9		0.54	0.66
C10		2.21	0.94
C11		1.95	1.02
C12		1.86	0.99
C13		1.66	0.94
C14		1.62	0.80
C15		1.25	0.87
C16		1.34	1.00
C17		1.01	0.82
C18		2.55	1.20
C19		2.46	0.91
C20		2.16	0.98
C21		2.09	1.01
C22		1.76	0.97
C23		1.59	0.90
C24		1.47	0.95

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
GRADE	1.00	9.00
C1	0.00	3.00
C2	0.00	3.00
C3	0.00	3.00
C4	0.00	3.00
C5	0.00	3.00
C6	0.00	3.00
C7	0.00	3.00
C8	0.00	3.00
C9	0.00	5.00
C10	0.00	3.00
C11	0.00	3.00
C12	0.00	3.00
C13	0.00	3.00
C14	0.00	3.00
C15	0.00	3.00
C16	0.00	3.00
C17	0.00	3.00
C18	0.00	5.00
C19	0.00	3.00
C20	0.00	3.00
C21	0.00	3.00
C22	0.00	3.00
C23	0.00	3.00
C24	0.00	3.00

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
C25		1.49	1.06
C26		1.11	0.94
C27		3.05	1.32
C28		2.27	0.96
C29		2.07	1.03
C30		1.98	1.08
C31		1.70	1.03
C32		1.53	0.99
C33		1.58	1.01
C34		1.31	1.07
C35		1.10	0.99
C36		2.20	1.41
C37		2.24	0.91
C38		2.11	0.99
C39		1.98	1.05
C40		1.65	1.00
C41		1.48	0.94
C42		1.44	0.90
C43		1.42	1.04
C44		1.18	0.98
C45		3.08	1.41
C46		2.53	0.89
C47		2.17	1.04
C48		2.16	1.04
C49		1.85	1.03

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
C25	0.00	3.00
C26	0.00	3.00
C27	0.00	5.00
C28	0.00	3.00
C29	0.00	3.00
C30	0.00	3.00
C31	0.00	3.00
C32	0.00	3.00
C33	0.00	3.00
C34	0.00	3.00
C35	0.00	3.00
C36	0.00	5.00
C37	0.00	3.00
C38	0.00	3.00
C39	0.00	3.00
C40	0.00	3.00
C41	0.00	3.00
C42	0.00	3.00
C43	0.00	3.00
C44	0.00	3.00
C45	0.00	5.00
C46	0.00	3.00
C47	0.00	3.00
C48	0.00	3.00
C49	0.00	3.00

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
C50		1.69	1.01
C51		1.69	1.04
C52		1.00	1.13
C53		1.30	1.06
C54		3.05	1.42
C55		2.37	0.69
C56		2.17	0.98
C57		2.01	1.05
C58		1.64	1.01
C59		1.52	0.98
C60		1.58	0.97
C61		1.57	1.09
C62		1.27	1.04
C63		3.60	1.39
C64		1.89	1.15
C65		1.59	1.14
C66		1.63	1.15
C67		1.38	1.07
C68		1.34	1.05
C69		1.49	1.09
C70		1.32	1.11
C71		1.15	1.04
C72		2.28	1.00
C73		1.90	1.07
C74		1.69	1.07

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
C50	0.00	3.00
C51	0.00	3.00
C52	0.00	3.00
C53	0.00	3.00
C54	0.00	5.00
C55	0.00	3.00
C56	0.00	3.00
C57	0.00	3.00
C58	0.00	3.00
C59	0.00	3.00
C60	0.00	3.00
C61	0.00	3.00
C62	0.00	3.00
C63	0.00	5.00
C64	0.00	3.00
C65	0.00	3.00
C66	0.00	3.00
C67	0.00	3.00
C68	0.00	3.00
C69	0.00	3.00
C70	0.00	3.00
C71	0.00	3.00
C72	0.00	5.00
C73	0.00	3.00
C74	0.00	3.00

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
C75		1.62	1.10
C76		1.31	0.99
C77		1.29	0.9[illegible]
C78		1.30	0.9[illegible]
C79		1.37	1.0[illegible]
C80		1.15	1.0[illegible]
C81		2.91	1.7[illegible]
C82		1.37	0.9[illegible]
C83		1.30	0.9[illegible]
C84		1.17	0.9[illegible]
C85		0.97	0.8[illegible]
C86		0.88	0.7[illegible]
C87		0.86	0.7[illegible]
C88		0.69	0.6[illegible]
C89		0.73	0.6[illegible]
C90		1.58	1.5[illegible]
C91		1.82	1.0[illegible]
C92		1.68	1.0[illegible]
C93		1.40	1.0[illegible]
C94		1.12	0.9[illegible]
C95		0.74	0.7[illegible]
C96		0.92	0.8[illegible]
C97		0.03	0.0[illegible]
C98		0.03	0.0[illegible]
C99		2.22	1.51

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
C75	0.00	3.00
C76	0.00	3.00
C77	0.00	3.00
C78	0.00	3.00
C79	0.00	3.00
C80	0.00	3.00
C81	0.00	5.00
C82	0.00	3.00
C83	0.00	3.00
C84	0.00	3.00
C85	0.00	3.00
C86	0.00	3.00
C87	0.00	3.00
C88	0.00	3.00
C89	0.00	3.00
C90	0.00	5.00
C91	0.00	3.00
C92	0.00	3.00
C93	0.00	3.00
C94	0.00	3.00
C95	0.00	3.00
C96	0.00	3.00
C97	0.00	3.00
C98	0.00	3.00
C99	0.00	5.00

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
C100		0.85	0.7[illegible]
C101		0.84	0.77
C102		0.71	0.[illegible]9
C103		0.54	0.[illegible]3
C104		0.5[illegible]	0.55
C105		0.56	0.57
C106		0.61	0.62
C107		0.54	0.53
C108		0.63	1.0[illegible]
C109		1.12	0.95
C110		1.05	0.94
C111		0.8[illegible]	0.82
C112		0.82	0.7[illegible]
C113		0.62	0.[illegible]3
C114		0.70	0.71
C115		0.65	0.[illegible][illegible]
C116		0.57	0.61
C117		1.0[illegible]	1.2[illegible]
C11[illegible]		1.02	0.[illegible]9
C119		0.93	0.[illegible]1
C120		0.81	0.79
C121		0.69	0.69
C122		0.5[illegible]	0.[illegible]3
C123		0.59	0.[illegible](
C124		0.[illegible]6	0.[illegible]5

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
C100	0.00	3.00
C101	0.00	3.00
C102	0.00	3.00
C103	0.00	3.00
C104	0.00	3.00
C105	0.00	3.00
C106	0.00	3.00
C107	0.00	3.00
C108	0.00	5.00
C109	0.00	3.00
C110	0.00	3.00
C111	0.00	3.00
C112	0.00	3.00
C113	0.00	3.00
C114	0.00	3.00
C115	0.00	3.00
C116	0.00	3.00
C117	0.00	5.00
C11[illegible]	0.00	3.00
C119	0.00	3.00
C120	0.00	3.00
C121	0.00	3.00
C122	0.00	3.00
C123	0.00	3.00
C124	0.00	3.00

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
C125		0.53	0.54
C126		0.96	1.23
C127		0.67	0.66
C128		0.67	0.70
C129		0.60	0.62
C130		0.59	0.61
C131		0.54	0.54
C132		0.53	0.54
C133		0.55	0.57
C134		0.51	0.52
C135		0.42	0.60
C136		0.87	0.82
C137		0.92	0.86
C138		0.75	0.75
C139		0.71	0.71
C140		0.58	0.59
C141		0.56	0.63
C142		0.60	0.64
C143		0.54	0.59
C144		0.74	1.12
C145		0.66	0.67
C146		0.67	0.70
C147		0.59	0.61
C148		0.58	0.62
C149		0.58	0.59

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
C125	0.00	3.00
C126	0.00	5.00
C127	0.00	3.00
C128	0.00	3.00
C129	0.00	3.00
C130	0.00	3.00
C131	0.00	2.00
C132	0.00	2.00
C133	0.00	3.00
C134	0.00	2.00
C135	0.00	5.00
C136	0.00	3.00
C137	0.00	3.00
C138	0.00	3.00
C139	0.00	3.00
C140	0.00	3.00
C141	0.00	3.00
C142	0.00	3.00
C143	0.00	3.00
C144	0.00	5.00
C145	0.00	3.00
C146	0.00	3.00
C147	0.00	3.00
C148	0.00	3.00
C149	0.00	3.00

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
C150		0.53	0.55
C151		0.54	0.56
C152		0.51	0.54
C153		0.35	0.61
C154		1.41	1.06
C155		1.32	1.05
C156		1.11	1.01
C157		0.81	0.83
C158		0.72	0.75
C159		0.59	0.62
C160		0.75	0.82
C161		0.54	0.56
C162		1.92	1.65
C163		1.13	1.02
C164		1.06	0.95
C165		0.95	0.94
C166		0.71	0.76
C167		0.61	0.65
C168		0.57	0.56
C169		0.66	0.71
C170		0.54	0.56
C171		1.57	1.79
C172		0.67	0.66
C173		0.72	0.74
C174		0.74	0.75

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
C150	0.00	2.00
C151	0.00	3.00
C152	0.00	3.00
C153	0.00	5.00
C154	0.00	3.00
C155	0.00	3.00
C156	0.00	3.00
C157	0.00	3.00
C158	0.00	3.00
C159	0.00	3.00
C160	0.00	3.00
C161	0.00	3.00
C162	0.00	5.00
C163	0.00	3.00
C164	0.00	3.00
C165	0.00	3.00
C166	0.00	3.00
C167	0.00	3.00
C168	0.00	3.00
C169	0.00	3.00
C170	0.00	3.00
C171	0.00	5.00
C172	0.00	3.00
C173	0.00	3.00
C174	0.00	3.00

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
C175		0.59	0.65
C176		0.55	0.59
C177		0.53	0.57
C178		0.61	0.67
C179		0.53	0.57
C180		0.79	1.39
GROUP		2.38	0.71
FLAG	FLAG OFFICER CONTACTS	0.79	0.58
CAPT	CAPT, CMDR, LT CMDR CONTACTS	1.61	0.67
OFF	OFFICER & WARRANT OFFICER CONTACTS	1.76	0.75
CPOMYR	E7-E9 CONTACTS IN OWN RATING	1.69	0.65
CPOOR	E7-E9 CONTACTS IN OTHER RATINGS	1.69	0.79
POMYR	E4-E6 CONTACTS IN OWN RATING	1.90	0.65
POOR	E4-E6 CONTACTS IN OTHER RATINGS	1.77	0.80
NONRMYR	E1-E3 CONTACTS IN OWN RATING	1.47	0.98
NONROR	E1-E3 CONTACTS IN OTHER RATINGS	1.45	0.88
OTHSERV	NON-NAVY SERVICE CONTACTS	1.02	0.89
CIVEMPL	NAVY CIVILIAN EMPLOYEE CONTACTS	1.14	0.70
SALESUPP	SALES & SUPPLIERS CONTACTS	0.88	0.58
PROFSPEC	PROFESSIONALS & SPECIALISTS	0.81	0.83
CONTRACT	CONTRACTOR PERSONNEL	0.72	0.59
LOCALGOV	LOCAL GOVERNMENT PERSONNEL	0.58	0.55
USGOV	U.S. GOVT AGENCY PERSONNEL	0.70	0.81
MEDIA	MEDIA, PR & SPECIAL INTERESTS	0.58	0.55
FAMDEP	FAMILIES AND DEPENDENTS OF NAVY	0.91	0.67

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
C175	0.00	3.00
C176	0.00	3.00
C177	0.00	3.00
C178	0.00	3.00
C179	0.00	3.00
C180	0.00	5.00
GROUP	1.00	3.00
FLAG	0.00	2.88
CAPT	0.00	3.00
OFF	0.00	3.00
CPOMYR	0.00	3.00
CPOOR	0.00	3.00
POMYR	0.00	3.00
POOR	0.00	3.00
NONRMYR	0.00	3.00
NONROR	0.00	3.00
OTHSERV	0.00	3.00
CIVEMPL	0.00	3.00
SALESUPP	0.00	3.00
PROFSPEC	0.00	3.00
CONTRACT	0.00	2.75
LOCALGOV	0.00	2.25
USGOV	0.00	3.00
MEDIA	0.00	2.25
FAMDEP	0.00	3.00

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
GENPUB	GENERAL PUBLIC CONTACTS	0.78	0.65
FOREIGN	GENERAL PUBLIC IN FOREIGN PORTS	0.64	0.60
M1ON1	MILITARY 1 ON 1 CONTACTS	2.00	0.56
MTELE	MIL TELEPHONE ELECTRONIC CONTACTS	1.60	0.69
MUNSCHEL	MIL UNSCHEDULED CONTACTS	1.73	0.71
MFORMAL	MIL FORMAL CONTACTS	1.48	0.66
MCEREMONY	MIL CEREMONY CONTACTS	1.39	0.69
MTRNG	MIL TRAINING CONTACTS	1.35	0.65
MWATCH	MIL WATCH CONTACTS	1.30	0.79
MDRILLS	MIL DRILLS CONTACTS	1.06	0.75
MTOTPERS	TOTAL MILITARY CONTACTS	2.49	0.63
C1ON1	CIVILIAN 1 ON 1 CONTACTS	1.04	0.61
CTELE	CIV TELEPHONE ELECTRONIC CONTACTS	0.99	0.63
CUNSCHEL	CIV UNSCHEDULED CONTACTS	0.65	0.61
CFORMAL	CIV FORMAL CONTACTS	0.72	0.57
CCEREMONY	CIV CEREMONY CONTACTS	0.60	0.54
CTRNG	CIV TRAINING CONTACTS	0.61	0.55
CWATCH	CIV WATCH CONTACTS	0.65	0.59
CDRILLS	CIV DRILLS CONTACTS	0.54	0.52
CTOTPERS	TOTAL CIVILIAN CONTACTS	1.24	1.00
ONEONONE	TOTAL 1 ON 1 CONTACTS	1.52	0.50
TELE	TOTAL TELEPHONE/RADIO CONTACTS	1.40	0.59
UNSCHED	TOTAL CASUAL CONTACTS	1.29	0.59
FORMAL	TOTAL FORMAL CONTACTS	1.10	0.50
CEREMONY	TOTAL CEREMONIAL CONTACTS	1.00	0.55

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
GENPUB	0.00	2.75
FOREIGN	0.00	3.00
M1ON1	0.00	3.00
MTELE	0.00	3.00
MUNSCHEL	0.00	3.00
MFORMAL	0.00	2.90
MCEREMONY	0.00	3.00
MTRNG	0.00	2.90
MWATCH	0.00	3.00
MDRILLS	0.00	2.90
MTOTPERS	0.00	4.66
C1ON1	0.00	2.70
CTELE	0.00	2.60
CUNSCHEL	0.00	2.60
CFORMAL	0.00	2.50
CCEREMONY	0.00	2.40
CTRNG	0.00	2.40
CWATCH	0.00	2.50
CDRILLS	0.00	2.40
CTOTPERS	0.00	5.00
ONEONONE	0.00	2.80
TELE	0.00	2.80
UNSCHED	0.00	2.70
FORMAL	0.00	2.60
CEREMONY	0.00	2.55

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
TRAINING	TOTAL TRAINING CONTACTS	0.98	0.52
WATCH	TOTAL WATCH CONTACTS	0.97	0.62
DRILLS	TOTAL DRILLS CONTACTS	0.60	0.57
TOTPERS	GRAND MEAN CONTACTS	1.66	0.77

VARIABLE	MINIMUM VALUE	MAXIMUM VALUE
TRAINING	0.00	2.45
WATCH	0.00	2.70
DRILLS	0.00	2.50
TOTPERS	0.00	4.70

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	FLAG	CAPT	OFF	CPOMYR
FLAG FLAG OFFICER CONTACTS	1.00000 594	0.57539 594	0.45868 594	0.43077 594
CAPT CAPT, CMDR, LT CMDR CONTACTS	0.57539 594	1.00000 594	0.73799 594	0.51383 594
OFF OFFICER & WARRANT OFFICER CONTACTS	0.45868 594	0.73799 594	1.00000 594	0.59244 594
CPOMYR E7-E9 CONTACTS IN OWN RATING	0.43077 594	0.51383 594	0.59244 594	1.00000 594
CPOOR E7-E9 CONTACTS IN OTHER RATINGS	0.47251 594	0.64513 594	0.63322 594	0.50405 594
POMYR E4-E6 CONTACTS IN OWN RATING	0.34053 594	0.42685 594	0.56217 594	0.67275 594
POOR E4-E6 CONTACTS IN OTHER RATINGS	0.42924 594	0.55982 594	0.64166 594	0.49911 594
NONMYR E1-E3 CONTACTS IN OWN RATING	0.28370 594	0.34472 594	0.44412 594	0.54414 594
NONOR E1-E3 CONTACTS IN OTHER RATINGS	0.42081 594	0.50518 594	0.55499 594	0.40324 594
OTHSERV NON-NAVY SERVICE CONTACTS	0.51286 594	0.53748 594	0.46777 594	0.42093 594
CIVEMPL NAVY CIVILIAN EMPLOYEE CONTACTS	0.47946 594	0.50416 594	0.36596 594	0.42346 594
SALESUPP SALES & SUPPLIERS CONTACTS	0.60537 594	0.45366 594	0.36786 594	0.32029 594
PROFSPEC PROFESSIONALS & SPECIALISTS	0.55902 594	0.47769 594	0.37506 594	0.36273 594
CONTRACT CONTRACTOR PERSONNEL	0.56134 594	0.42466 594	0.35379 594	0.34624 594
LOCALGOV LOCAL GOVERNMENT PERSONNEL	0.64809 594	0.43314 594	0.36610 594	0.33440 594
USGOV U.S. GOVT AGENCY PERSONNEL	0.61737 594	0.46912 594	0.40004 594	0.34764 594
MEDIA MEDIA, PR & SPECIAL INTERESTS	0.64112 594	0.41714 594	0.33035 594	0.32645 594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	FLAG	CAPT	OFF	CPOMYR
FAMDEP	0.53821	0.47673	0.36956	0.34759
FAMILIES AND DEPENDENTS OF NAVY	594	594	594	594
GENPUB	0.55011	0.43827	0.37669	0.34401
GENERAL PUBLIC CONTACTS	594	594	594	594
FOREIGN	0.54564	0.39841	0.35803	0.33260
GENERAL PUBLIC IN FOREIGN PORTS	594	594	594	594
ONEONONE	0.62501	0.61435	0.56202	0.53132
TOTAL 1 ON 1 CONTACTS	594	594	594	594
TELE	0.62208	0.70520	0.62991	0.59406
TOTAL TELEPHONE/RADIO CONTACTS	594	594	594	594
UNSCHED	0.62472	0.69859	0.65761	0.59004
TOTAL CASUAL CONTACTS	594	594	594	594
FORMAL	0.66235	0.70690	0.66275	0.60709
TOTAL FORMAL CONTACTS	594	594	594	594
CEREMONY	0.68511	0.65359	0.64404	0.63729
TOTAL CEREMONIAL CONTACTS	594	594	594	594
TRAINING	0.67278	0.65006	0.64232	0.62647
TOTAL TRAINING CONTACTS	594	594	594	594
WATCH	0.57163	0.54526	0.59570	0.56047
TOTAL WATCH CONTACTS	594	594	594	594
DRILLS	0.66396	0.57629	0.59650	0.53702
TOTAL DRILLS CONTACTS	594	594	594	594
TOTERS	0.11492	0.29321	0.28504	0.30304
GRAND MEAN CONTACTS	543	543	543	543

	CPOOR	POMYR	POOR	NONRMYR
FLAG	0.47251	0.34053	0.42924	0.28370
FLAG OFFICER CONTACTS	594	594	594	594
CAPT	0.64513	0.42685	0.55962	0.34472
CAPT, CMDR, LT CMDR CONTACTS	594	594	594	594
OFF	0.63322	0.56217	0.64168	0.44412
OFFICER & WARRANT OFFICER CONTACTS	594	594	594	594
CPOMYR	0.50405	0.67275	0.49911	0.54414
E7-E9 CONTACTS IN OWN RATING	594	594	594	594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	CPOOR	POMYR	POOR	NONRMYR
CPOOR E7-E9 CONTACTS IN OTHER RATINGS	1.00000 594	0.45422 594	0.79609 594	0.38485 594
POMYR E4-E6 CONTACTS IN OWN RATING	0.45422 594	1.00000 594	0.57642 594	0.67139 594
POOR E4-E6 CONTACTS IN OTHER RATINGS	0.79609 594	0.57642 594	1.00000 594	0.45797 594
NONRMYR E1-E3 CONTACTS IN OWN RATING	0.38485 594	0.67139 594	0.45797 594	1.00000 594
NONROR E1-E3 CONTACTS IN OTHER RATINGS	0.71750 594	0.49877 594	0.77745 594	0.55071 594
OTHSERV NON-NAVY SERVICE CONTACTS	0.41315 594	0.37296 594	0.42000 594	0.39451 594
CIVEMPL NAVY CIVILIAN EMPLOYEE CONTACTS	0.40921 594	0.31264 594	0.37619 594	0.23066 594
SALESUPP SALES & SUPPLIERS CONTACTS	0.40661 594	0.28463 594	0.40259 594	0.35144 594
PROFSPEC PROFESSIONALS & SPECIALISTS	0.42245 594	0.29933 594	0.41952 594	0.31270 594
CONTRACT CONTRACTOR PERSONNEL	0.38527 594	0.29540 594	0.37847 594	0.36010 594
LOCALGOV LOCAL GOVERNMENT PERSONNEL	0.42816 594	0.27812 594	0.39685 594	0.30855 594
USGOV U.S. GOVT AGENCY PERSONNEL	0.42747 594	0.28595 594	0.42028 594	0.26191 594
MEDIA MEDIA, PR & SPECIAL INTERESTS	0.38616 594	0.28348 594	0.38352 594	0.31201 594
FAMDEP FAMILIES AND DEPENDENTS OF NAVY	0.41175 594	0.31937 594	0.42266 594	0.29656 594
GENPUB GENERAL PUBLIC CONTACTS	0.40114 594	0.29349 594	0.41813 594	0.31934 594
FOREIGN GENERAL PUBLIC IN FOREIGN PORTS	0.37985 594	0.31794 594	0.39604 594	0.37406 594
ONEONONE TOTAL 1 ON 1 CONTACTS	0.57182 594	0.46960 594	0.56965 594	0.46491 594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	CPOOR	POMYR	POOR	NONRMYR
TELE	0.63162	0.53766	0.63649	0.46701
TOTAL TELEPHONE/RADIO CONTACTS	594	594	594	594
UNSCHED	0.66976	0.57814	0.66592	0.55212
TOTAL CASUAL CONTACTS	594	594	594	594
FORMAL	0.69209	0.56899	0.66265	0.53973
TOTAL FORMAL CONTACTS	594	594	594	594
CEREMONY	0.67868	0.61860	0.68973	0.57479
TOTAL CEREMONIAL CONTACTS	594	594	594	594
TRAINING	0.68219	0.59922	0.66594	0.58191
TOTAL TRAINING CONTACTS	594	594	594	594
WATCH	0.58492	0.56725	0.62692	0.56149
TOTAL WATCH CONTACTS	594	594	594	594
DRILLS	0.61749	0.54265	0.63370	0.55262
TOTAL DRILLS CONTACTS	594	594	594	594
TOTPERS	0.28325	0.19969	0.26252	0.19027
GRAND MEAN CONTACTS	543	543	543	543

	NONROR	OTHSERV	CIVEMPL	SALESUPP
FLAG	0.42081	0.51266	0.47946	0.60537
FLAG OFFICER CONTACTS	594	594	594	594
CAPT	0.50516	0.53746	0.50416	0.45366
CAPT, CMDR, LT CMDR CONTACTS	594	594	594	594
OFF	0.55499	0.46777	0.38598	0.36766
OFFICER & WARRANT OFFICER CONTACTS	594	594	594	594
CPOMYR	0.40324	0.42093	0.42348	0.32029
E7-E9 CONTACTS IN OWN RATING	594	594	594	594
CPOOR	0.71750	0.41315	0.40921	0.40661
E7-E9 CONTACTS IN OTHER RATINGS	594	594	594	594
POMYR	0.49877	0.37296	0.31264	0.26463
E4-E6 CONTACTS IN OWN RATING	594	594	594	594
POOR	0.77745	0.42000	0.37619	0.40259
E4-E6 CONTACTS IN OTHER RATINGS	594	594	594	594
NONRMYR	0.55071	0.39431	0.23666	0.35144
E1-E3 CONTACTS IN OWN RATING	594	594	594	594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	NONNOR	OTHSERV	CIVEMPL	SALESUPP
NONNOR E1-E3 CONTACTS IN OTHER RATINGS	1.00000 594	0.42431 594	0.28338 594	0.41337 594
OTHSERV NON-NAVY SERVICE CONTACTS	0.42431 594	1.00000 594	0.48773 594	0.55915 594
CIVEMPL NAVY CIVILIAN EMPLOYEE CONTACTS	0.28338 594	0.48773 594	1.00000 594	0.63506 594
SALESUPP SALES & SUPPLIERS CONTACTS	0.41337 594	0.55915 594	0.63506 594	1.00000 594
PROFSPEC PROFESSIONALS & SPECIALISTS	0.38643 594	0.51459 594	0.67486 594	0.71935 594
CONTRACT CONTRACTOR PERSONNEL	0.38119 594	0.54829 594	0.64065 594	0.60415 594
LOCALGOV LOCAL GOVERNMENT PERSONNEL	0.40543 594	0.55662 594	0.57669 594	0.63563 594
USGOV U.S. GOVT AGENCY PERSONNEL	0.39657 594	0.54810 594	0.63015 594	0.74693 594
MEDIA MEDIA, PR & SPECIAL INTERESTS	0.38702 594	0.54144 594	0.58356 594	0.62194 594
FAMDEP FAMILIES AND DEPENDENTS OF NAVY	0.39099 594	0.54633 594	0.64293 594	0.70620 594
GENPUB GENERAL PUBLIC CONTACTS	0.42066 594	0.53009 594	0.59451 594	0.74452 594
FOREIGN GENERAL PUBLIC IN FOREIGN PORTS	0.39878 594	0.52105 594	0.48405 594	0.72656 594
ONEONONE TOTAL 1 ON 1 CONTACTS	0.55241 594	0.64852 594	0.64771 594	0.67826 594
TELE TOTAL TELEPHONE/RADIO CONTACTS	0.58309 594	0.66493 594	0.68672 594	0.66560 594
UNSCHED TOTAL CASUAL CONTACTS	0.64967 594	0.67831 594	0.68408 594	0.69453 594
FORMAL TOTAL FORMAL CONTACTS	0.63801 594	0.67726 594	0.67101 594	0.71952 594
CEREMONY TOTAL CEREMONIAL CONTACTS	0.65241 594	0.65534 594	0.60629 594	0.72323 594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	NONROP	OTHSERV	CIVEMPL	SALESUPP
TRAINING	0.66469	0.62137	0.62313	0.73656
TOTAL TRAINING CONTACTS	594	594	594	594
WATCH	0.60539	0.54802	0.55197	0.67437
TOTAL WATCH CONTACTS	594	594	594	594
DRILLS	0.64869	0.54620	0.50437	0.74623
TOTAL DRILLS CONTACTS	594	594	594	594
TOPERS	0.32129	0.30742	0.23646	0.12504
GRAND MEAN CONTACTS	543	543	543	543

	PROFSPEC	CONTRACT	LOCALGOV	USGOV
FLAG	0.55902	0.56134	0.64609	0.61737
FLAG OFFICER CONTACTS	594	594	594	594
CAPT	0.47769	0.42466	0.43314	0.46912
CAPT, CMDR, LT CMDR CONTACTS	594	594	594	594
OFF	0.37508	0.35379	0.36610	0.40064
OFFICER & WARRANT OFFICER CONTACTS	594	594	594	594
CPOMYR	0.38273	0.34624	0.35440	0.34764
E7-E9 CONTACTS IN OWN RATING	594	594	594	594
CPOOR	0.42245	0.38527	0.42816	0.42747
E7-E9 CONTACTS IN OTHER RATINGS	594	594	594	594
POMYR	0.29933	0.29540	0.27612	0.26595
E4-E6 CONTACTS IN OWN RATING	594	594	594	594
POOR	0.41952	0.37847	0.39685	0.42028
E4-E6 CONTACTS IN OTHER RATINGS	594	594	594	594
NONRMYR	0.31270	0.36016	0.30855	0.26191
E1-E3 CONTACTS IN OWN RATING	594	594	594	594
NONROR	0.38643	0.38119	0.40543	0.39697
E1-E3 CONTACTS IN OTHER RATINGS	594	594	594	594
OTHSERV	0.51459	0.54629	0.55662	0.54610
NON-NAVY SERVICE CONTACTS	594	594	594	594
CIVEMPL	0.67486	0.64069	0.57669	0.63015
NAVY CIVILIAN EMPLOYEE CONTACTS	594	594	594	594
SALESUPP	0.71935	0.80415	0.63583	0.74693
SALES & SUPPLIERS CONTACTS	594	594	594	594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	PROFSPEC	CONTRACT	LOCALGOV	USGOV
PROFSPEC PROFESSIONALS & SPECIALISTS	1.00000 594	0.72022 594	0.74946 594	0.75573 594
CONTRACT CONTRACTOR PERSONNEL	0.72022 594	1.00000 594	0.78891 594	0.74611 594
LOCALGOV LOCAL GOVERNMENT PERSONNEL	0.74946 594	0.78891 594	1.00000 594	0.85107 594
USGOV U.S. GOVT AGENCY PERSONNEL	0.75573 594	0.74611 594	0.85107 594	1.00000 594
MEDIA MEDIA, PR & SPECIAL INTERESTS	0.69305 594	0.74676 594	0.87361 594	0.77793 594
FAMDEP FAMILIES AND DEPENDENTS OF NAVY	0.67177 594	0.65433 594	0.70356 594	0.73066 594
GENPUB GENERAL PUBLIC CONTACTS	0.66326 594	0.70109 594	0.77421 594	0.72103 594
FOREIGN GENERAL PUBLIC IN FOREIGN PORTS	0.62327 594	0.67616 594	0.75140 594	0.67746 594
ONEONONE TOTAL 1 ON 1 CONTACTS	0.68234 594	0.68043 594	0.67792 594	0.66593 594
TELE TOTAL TELEPHONE/RADIO CONTACTS	0.67892 594	0.66700 594	0.65729 594	0.69162 594
UNSCHED TOTAL CASUAL CONTACTS	0.69680 594	0.68542 594	0.68648 594	0.70216 594
FORMAL TOTAL FORMAL CONTACTS	0.70104 594	0.69433 594	0.71889 594	0.72929 594
CEREMONY TOTAL CEREMONIAL CONTACTS	0.67490 594	0.68580 594	0.74749 594	0.71789 594
TRAINING TOTAL TRAINING CONTACTS	0.70570 594	0.69594 594	0.76353 594	0.73216 594
WATCH TOTAL WATCH CONTACTS	0.64055 594	0.66223 594	0.67102 594	0.64572 594
DRILLS TOTAL DRILLS CONTACTS	0.66561 594	0.68400 594	0.75746 594	0.69667 594
TOTPERS GRAND MEAN CONTACTS	0.18771 543	0.14171 543	0.05864 543	0.13015 543

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	MEDIA	FAMDEP	GENPUB	FOREIGN
FLAG FLAG OFFICER CONTACTS	0.64112 594	0.53821 594	0.55011 594	0.54504 594
CAPT CAPT, CMDR, LT CMDR CONTACTS	0.41714 594	0.47873 594	0.43827 594	0.39841 594
OFF OFFICER & WARRANT OFFICER CONTACTS	0.33035 594	0.36956 594	0.37889 594	0.35803 594
CPOMYR E7-E9 CONTACTS IN OWN RATING	0.32629 594	0.34759 594	0.34401 594	0.33280 594
CPOOR E7-E9 CONTACTS IN OTHER RATINGS	0.38616 594	0.41175 594	0.40114 594	0.37985 594
POMYR E4-E6 CONTACTS IN OWN RATING	0.28348 594	0.31937 594	0.29349 594	0.31794 594
POOR E4-E6 CONTACTS IN OTHER RATINGS	0.36352 594	0.42266 594	0.41613 594	0.39604 594
NONPMYR E1-E3 CONTACTS IN OWN RATING	0.31201 594	0.29656 594	0.31934 594	0.37400 594
NONPOR E1-E3 CONTACTS IN OTHER RATINGS	0.36702 594	0.39099 594	0.42066 594	0.39676 594
OTHSERV NON-NAVY SERVICE CONTACTS	0.54144 594	0.54633 594	0.53009 594	0.52105 594
CIVEMPL NAVY CIVILIAN EMPLOYEE CONTACTS	0.58356 594	0.64293 594	0.59451 594	0.46405 594
SALESUPP SALES & SUPPLIERS CONTACTS	0.82194 594	0.70820 594	0.74432 594	0.72066 594
PROFSPEC PROFESSIONALS & SPECIALISTS	0.69305 594	0.67177 594	0.66326 594	0.62327 594
CONTRACT CONTRACTOR PERSONNEL	0.74876 594	0.65433 594	0.70109 594	0.67616 594
LOCALGOV LOCAL GOVERNMENT PERSONNEL	0.87381 594	0.70356 594	0.77421 594	0.75140 594
USGOV U.S. GOVT AGENCY PERSONNEL	0.77793 594	0.73066 594	0.72103 594	0.67740 594
MEDIA MEDIA, PR & SPECIAL INTERESTS	1.00000 594	0.73362 594	0.78120 594	0.76256 594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	MEDIA	FAMDEP	GENPUB	FOREIGN
FAMDEP FAMILIES AND DEPENDENTS OF NAVY	0.73302 594	1.00000 594	0.80580 594	0.68028 594
GENPUB GENERAL PUBLIC CONTACTS	0.78120 594	0.80580 594	1.00000 594	0.73491 594
FOREIGN GENERAL PUBLIC IN FOREIGN PORTS	0.78258 594	0.68028 594	0.73491 594	1.00000 594
ONEONONE TOTAL 1 ON 1 CONTACTS	0.66555 594	0.70866 594	0.69354 594	0.63965 594
TELE TOTAL TELEPHONE/RADIO CONTACTS	0.65339 594	0.70496 594	0.68929 594	0.61303 594
UNSCHED TOTAL CASUAL CONTACTS	0.68178 594	0.71166 594	0.72260 594	0.67294 594
FORMAL TOTAL FORMAL CONTACTS	0.70854 594	0.71293 594	0.71675 594	0.66759 594
CEREMONY TOTAL CEREMONIAL CONTACTS	0.73344 594	0.69602 594	0.71634 594	0.67097 594
TRAINING TOTAL TRAINING CONTACTS	0.73047 594	0.69449 594	0.71019 594	0.66851 594
WATCH TOTAL WATCH CONTACTS	0.65145 594	0.60541 594	0.60376 594	0.66114 594
DRILLS TOTAL DRILLS CONTACTS	0.72992 594	0.63359 594	0.67370 594	0.69692 594
TOTPERS GRAND MEAN CONTACTS	0.06038 543	0.23603 543	0.19905 543	0.13165 543

	ONEONONE	TELE	UNSCHED	FORMAL
FLAG FLAG OFFICER CONTACTS	0.62501 594	0.62208 594	0.62472 594	0.66235 594
CAP1 CAP1, CMDR, LT CMDR CONTACTS	0.61435 594	0.70520 594	0.69859 594	0.70690 594
OFF OFFICER & WARRANT OFFICER CONTACTS	0.56202 594	0.62991 594	0.65781 594	0.66275 594
CPOMYR E7-E9 CONTACTS IN OWN RATING	0.53132 594	0.59408 594	0.59004 594	0.60709 594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	ONEONONE	TELE	UNSCHED	FORMAL
CPOOR E7-E9 CONTACTS IN OTHER RATINGS	0.57182 594	0.63182 594	0.66976 594	0.69209 594
PONYR E4-E6 CONTACTS IN OWN RATING	0.46960 594	0.53768 594	0.57614 594	0.56899 594
POOR E4-E6 CONTACTS IN OTHER RATINGS	0.56965 594	0.63849 594	0.68592 594	0.68285 594
NONRMYR E1-E3 CONTACTS IN OWN RATING	0.46496 594	0.48701 594	0.55212 594	0.53973 594
NONROR E1-E3 CONTACTS IN OTHER RATINGS	0.55241 594	0.58309 594	0.64967 594	0.63601 594
OTHSERV NON-NAVY SERVICE CONTACTS	0.64852 594	0.66493 594	0.67631 594	0.67726 594
CIVEMPL NAVY CIVILIAN EMPLOYEE CONTACTS	0.64771 594	0.68672 594	0.68406 594	0.67101 594
SALESUPP SALES & SUPPLIERS CONTACTS	0.67626 594	0.66560 594	0.69453 594	0.71932 594
PROFSPEC PROFESSIONALS & SPECIALISTS	0.68234 594	0.67692 594	0.69660 594	0.70104 594
CONTRACT CONTRACTOR PERSONNEL	0.68043 594	0.66700 594	0.68542 594	0.69435 594
LOCALGOV LOCAL GOVERNMENT PERSONNEL	0.67792 594	0.65729 594	0.68848 594	0.71669 594
USGOV U.S. GOVT AGENCY PERSONNEL	0.68593 594	0.69162 594	0.70216 594	0.72929 594
MEDIA MEDIA, PR & SPECIAL INTERESTS	0.66555 594	0.65339 594	0.68176 594	0.70854 594
FAMDEP FAMILIES AND DEPENDENTS OF NAVY	0.70866 594	0.70496 594	0.71168 594	0.71293 594
GENPUB GENERAL PUBLIC CONTACTS	0.69354 594	0.68929 594	0.72260 594	0.71875 594
FOREIGN GENERAL PUBLIC IN FOREIGN PORTS	0.63969 594	0.61303 594	0.67294 594	0.66759 594
ONEONONE TOTAL 1 ON 1 CONTACTS	1.00000 594	0.82849 594	0.81370 594	0.77526 594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	ONEONONE	TELE	UNSCHED	FORMAL
TELE	0.62849	1.00000	0.86476	0.82502
TOTAL TELEPHONE/RADIO CONTACTS	594	594	594	594
UNSCHED	0.81370	0.86478	1.00000	0.88177
TOTAL CASUAL CONTACTS	594	594	594	594
FORMAL	0.77526	0.82502	0.88177	1.00000
TOTAL FORMAL CONTACTS	594	594	594	594
CEREMONY	0.72894	0.75895	0.81041	0.87631
TOTAL CEREMONIAL CONTACTS	594	594	594	594
TRAINING	0.71194	0.74811	0.81240	0.85775
TOTAL TRAINING CONTACTS	594	594	594	594
WATCH	0.59834	0.63134	0.68390	0.68573
TOTAL WATCH CONTACTS	594	594	594	594
DRILLS	0.62042	0.64449	0.70720	0.74340
TOTAL DRILLS CONTACTS	594	594	594	594
1OTHERS	0.36595	0.36465	0.34727	0.29972
GRAND MEAN CONTACTS	543	543	543	543

	CEREMONY	TRAINING	WATCH	DRILLS
FLAG	0.68511	0.67278	0.57163	0.66396
FLAG OFFICER CONTACTS	594	594	594	594
CAPT	0.65359	0.65006	0.54528	0.57629
CAPT, CMDR, LT CMDR CONTACTS	594	594	594	594
OFF	0.64404	0.64232	0.59570	0.59650
OFFICER & WARRANT OFFICER CONTACTS	594	594	594	594
CPOMYR	0.63729	0.62647	0.56047	0.53702
E7-E9 CONTACTS IN OWN RATING	594	594	594	594
CPOOR	0.67868	0.68219	0.58492	0.61749
E7-E9 CONTACTS IN OTHER RATINGS	594	594	594	594
POMYR	0.61860	0.59922	0.56725	0.54285
E4-E6 CONTACTS IN OWN RATING	594	594	594	594
POOR	0.68973	0.68594	0.62692	0.63370
E4-E6 CONTACTS IN OTHER RATINGS	594	594	594	594
NONRMYR	0.57479	0.58191	0.56149	0.55264
E1-E3 CONTACTS IN OWN RATING	594	594	594	594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	CEREMONY	TRAINING	MATCH	DRILLS
NONNOR E1-E3 CONTACTS IN OTHER RATINGS	0.65241 594	0.66469 594	0.60539 594	0.64869 594
OTHSERV NON-NAVY SERVICE CONTACTS	0.65534 594	0.62137 594	0.54602 594	0.54820 594
CIVEMPL NAVY CIVILIAN EMPLOYEE CONTACTS	0.60629 594	0.62313 594	0.55197 594	0.56457 594
SALESUPP SALES & SUPPLIERS CONTACTS	0.72323 594	0.73656 594	0.67437 594	0.74623 594
PROFSPEC PROFESSIONALS & SPECIALISTS	0.67490 594	0.70570 594	0.64055 594	0.66561 594
CONTRACT CONTRACTOR PERSONNEL	0.68580 594	0.69594 594	0.66223 594	0.68400 594
LOCALGOV LOCAL GOVERNMENT PERSONNEL	0.74749 594	0.76353 594	0.67102 594	0.75746 594
USGOV U.S. GOVT AGENCY PERSONNEL	0.71769 594	0.73216 594	0.64572 594	0.69667 594
MEDIA MEDIA, PR & SPECIAL INTERESTS	0.73344 594	0.73047 594	0.65145 594	0.72992 594
FAMDEP FAMILIES AND DEPENDENTS OF NAVY	0.69802 594	0.69449 594	0.60541 594	0.63359 594
GENPUB GENERAL PUBLIC CONTACTS	0.71634 594	0.71019 594	0.60376 594	0.67370 594
FOREIGN GENERAL PUBLIC IN FOREIGN PORTS	0.67697 594	0.66851 594	0.66114 594	0.69692 594
ONEONONE TOTAL 1 ON 1 CONTACTS	0.72894 594	0.71194 594	0.59634 594	0.62042 594
TELE TOTAL TELEPHONE/RADIO CONTACTS	0.75895 594	0.74811 594	0.63134 594	0.64449 594
UNSCHED TOTAL CASUAL CONTACTS	0.81041 594	0.81240 594	0.68390 594	0.70720 594
FORMAL TOTAL FORMAL CONTACTS	0.87631 594	0.85775 594	0.68573 594	0.74340 594
CEREMONY TOTAL CEREMONIAL CONTACTS	1.00000 594	0.90691 594	0.75267 594	0.81696 594

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	CEREMONY	TRAINING	WATCH	DRILLS
TRAINING	0.90691	1.00000	0.76506	0.85407
TOTAL TRAINING CONTACTS	594	594	594	594
WATCH	0.75267	0.76506	1.00000	0.83209
TOTAL WATCH CONTACTS	594	594	594	594
DRILLS	0.81696	0.85407	0.83209	1.00000
TOTAL DRILLS CONTACTS	594	594	594	594
TOTPERS	0.23863	0.18339	0.19844	0.15091
GRAND MEAN CONTACTS	543	543	543	543

	TOTPERS
FLAG	0.11492
FLAG OFFICER CONTACTS	543
CAPT	0.29321
CAPT, CMDR, LT CMDR CONTACTS	543
OFF	0.26564
OFFICER & WARRANT OFFICER CONTACTS	543
CPOWN	0.30304
E7-E9 CONTACTS IN OWN RATING	543
CPOOT	0.28325
E7-E9 CONTACTS IN OTHER RATINGS	543
POWN	0.19989
E4-E6 CONTACTS IN OWN RATING	543
POOT	0.28252
E4-E6 CONTACTS IN OTHER RATINGS	543
NONEWN	0.19027
E1-E3 CONTACTS IN OWN RATING	543
NONWOT	0.32129
E1-E3 CONTACTS IN OTHER RATINGS	543
OTHSERV	0.30742
NON-NAVY SERVICE CONTACTS	543
CIVEMPL	0.23646
NAVY CIVILIAN EMPLOYEE CONTACTS	543
SALESUPP	0.12504
SALES & SUPPLIERS CONTACTS	543

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	TOTPERS
PROFSPEC PROFESSIONALS & SPECIALISTS	0.18771 543
CONTRACT CONTRACTOR PERSONNEL	0.14171 543
LOCALGOV LOCAL GOVERNMENT PERSONNEL	0.05884 543
USGOV U.S. GOVT AGENCY PERSONNEL	0.13015 543
MEDIA MEDIA, PR & SPECIAL INTERESTS	0.06036 543
FAMDEP FAMILIES AND DEPENDENTS OF NAVY	0.23603 543
GENPUB GENERAL PUBLIC CONTACTS	0.19905 543
FOREIGN GENERAL PUBLIC IN FOREIGN PORTS	0.13165 543
ONEONONE TOTAL 1 ON 1 CONTACTS	0.38593 543
TELE TOTAL TELEPHONE/RADIO CONTACTS	0.36465 543
UNSCHED TOTAL CASUAL CONTACTS	0.34727 543
FORMAL TOTAL FORMAL CONTACTS	0.29972 543
CEREMONY TOTAL CEREMONIAL CONTACTS	0.23803 543
TRAINING TOTAL TRAINING CONTACTS	0.16339 543
WATCH TOTAL WATCH CONTACTS	0.19844 543
DRILLS TOTAL DRILLS CONTACTS	0.15091 543
TOTPERS GRAND MEAN CONTACTS	1.00000 543

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

NOTE: 36 OBSERVATIONS DELETED DUE TO MISSING VALUES.

STEP 1 VARIABLE CAPT ENTERED R SQUARE = 0.06296130
C(P) = 144.69412163

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	1	77.58075185	77.58075185	23.79	0.0001
ERROR	354	1154.22542793	3.26052381		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.63733033				
CAPT	0.75010942	0.15377698	77.58075185	23.79	0.0001

STEP 2 VARIABLE WATCH ENTERED R SQUARE = 0.16006679
C(P) = 84.62953569

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	2	221.80738935	110.90369467	38.76	0.0001
ERROR	353	1009.99879043	2.86116636		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	5.03352064				
CAPT	1.39640397	0.17055438	192.34711781	67.23	0.0001
WATCH	-1.24510715	0.17537071	144.22663750	50.41	0.0001

STEP 3 VARIABLE CIVEMPL ENTERED R SQUARE = 0.23804714
C(P) = 55.69536119

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	3	293.22793654	97.74264551	36.66	0.0001
ERROR	352	938.57824324	2.66641546		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.66953134				
CAPT	1.20990209	0.16862743	137.26860130	51.48	0.0001
CIVEMPL	0.79896968	0.15437701	71.42054719	26.79	0.0001
WATCH	-1.55785414	0.17975606	200.26482745	75.11	0.0001

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 4 VARIABLE CPOOR ENTERED R SQUARE = 0.28675369
C(P) = 31.01676897

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	4	355.66882192	88.92220548	35.63	0.0001
ERROR	351	876.11735786	2.49606085		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.30664256				
CAPT	0.78606555	0.18383625	45.63762553	18.28	0.0001
CPOOR	0.78642691	0.15761043	62.46088536	25.02	0.0001
CIVEMPL	0.80552830	0.14936988	72.59232769	29.08	0.0001
WATCH	-1.67675415	0.18523644	256.22239602	102.65	0.0001

STEP 5 VARIABLE NONEOR ENTERED R SQUARE = 0.29958702
C(P) = 27.27434656

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	5	369.03314667	73.80662933	29.94	0.0001
ERROR	350	862.77303310	2.46500851		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.36239479				
CAPT	0.80123554	0.18280927	47.35354334	19.21	0.0001
CPOOR	0.96487666	0.17402295	75.78077764	30.74	0.0001
NONEOR	-0.33069444	0.14221826	13.34432475	5.41	0.0206
CIVEMPL	0.74114665	0.15099654	59.38666521	24.09	0.0001
WATCH	-1.70335677	0.19859626	181.34210732	73.56	0.0001

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 6 VARIABLE PROFSPEC ENTERED R SQUARE = 0.31083924
C(P) = 23.30976077

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	6	382.69370069	63.61561682	26.24	0.0001
ERROR	349	848.91247688	2.43241398		
TOTAL	355	1231.80617976			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.44100598				
CAP1	0.77151826	0.18202073	43.70068241	17.97	0.0001
CPOOR	0.96742379	0.17286986	76.17850297	31.32	0.0001
NONEOR	-0.36245266	0.14189047	15.87207229	6.53	0.0111
CIVEMPL	0.56573021	0.16702731	27.90495173	11.47	0.0008
PROFSPEC	0.45083132	0.18886111	13.86055422	5.70	0.0175
WATCH	-1.85828199	0.20767760	194.75140145	80.07	0.0001

STEP 7 VARIABLE CEREMONY ENTERED R SQUARE = 0.32115907
C(P) = 19.83945439

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	7	395.60572935	56.51510419	23.52	0.0001
ERROR	348	836.20045042	2.40287486		
TOTAL	355	1231.80617976			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.46210073				
CAP1	0.85579171	0.18456506	51.65045926	21.50	0.0001
CPOOR	1.03255269	0.17413465	84.48608916	35.16	0.0001
NONE/	-0.29106976	0.14440078	9.76306810	4.06	0.0446
CIVE	0.62142761	0.16776685	32.98655830	13.72	0.0002
PROF. C	0.58623956	0.19698813	21.42690940	8.92	0.0030
CEREMONY	-0.66356080	0.28850408	12.71202846	5.29	0.0220
WATCH	-1.73312059	0.21346526	158.39235783	65.92	0.0001

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 8 VARIABLE FORMAL ENTERED R SQUARE = 0.34106059
C(P) = 11.29007293

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	8	420.12054400	52.51506800	22.45	0.0001
ERROR	347	811.68563577	2.33915169		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.47103669				
CAPT	0.72675383	0.18643193	35.54614175	15.20	0.0001
CROOK	0.98497872	0.17243748	76.32162622	32.63	0.0001
NONNOM	-0.39583302	0.14610220	17.16994489	7.34	0.0071
CIVEMPL	0.46264067	0.17264155	16.79791435	7.18	0.0077
PROFSPEC	0.43846720	0.19978899	11.26651217	4.82	0.0289
FORMAL	1.14140406	0.35257726	24.51481465	10.48	0.0013
CEREMONY	-1.28400266	0.34315569	32.74973631	14.00	0.0002
WATCH	-1.63474061	0.21279668	136.04655866	59.02	0.0001

STEP 9 VARIABLE FLAG ENTERED R SQUARE = 0.34821534
C(P) = 9.49748963

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	9	428.93380732	47.65931192	20.54	0.0001
ERROR	346	802.87237245	2.32044038		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.50670473				
FLAG	0.38799996	0.19908958	8.81326332	3.80	0.0521
CAPT	0.65429891	0.18937009	27.70129207	11.94	0.0006
CROOK	1.01948468	0.17265666	60.90312657	34.87	0.0001
NONNOM	-0.37948105	0.14575838	15.72836379	6.78	0.0096
CIVEMPL	0.40706935	0.17196468	17.11806367	7.38	0.0069
PROFSPEC	0.38370979	0.20096216	8.45955676	3.65	0.0570
FORMAL	1.09932812	0.35182732	22.65509922	9.76	0.0019
CEREMONY	-1.47007120	0.35486526	39.82173469	17.16	0.0001
WATCH	-1.66402189	0.21247595	142.32097560	61.33	0.0001

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE

STEP 10 VARIABLE TELE ENTERED R SQUARE = 0.35369000
C(P) = 8.59076142

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	10	435.68846049	43.56884605	18.85	0.0001
ERROR	345	796.11771929	2.30758759		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.65338424				
FLAG	0.43933591	0.20079203	11.04736381	4.79	0.0293
CAP1	0.72602804	0.19344277	32.50573374	14.09	0.0002
CPOOR	1.04193336	0.17267705	84.01732151	36.41	0.0001
NONNOR	-0.32953417	0.14625683	11.40065234	4.94	0.0269
CIVEMPL	0.54580048	0.17755471	21.80527806	9.45	0.0023
PROFSPEC	0.44416968	0.20349665	10.99363944	4.76	0.0297
TELE	-0.46427409	0.26305366	6.75465316	2.93	0.0880
FORMAL	1.23049660	0.35913063	27.09040821	11.74	0.0007
CEREMONY	-1.46536502	0.35389180	39.50476758	17.15	0.0001
WATCH	-1.66302634	0.21217771	145.19161317	62.92	0.0001

STEP 11 VARIABLE UNSCHED ENTERED R SQUARE = 0.35975665
C(P) = 7.37967870

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	11	443.15047032	40.28640639	17.57	0.0001
ERROR	344	788.65570946	2.29260361		
TOTAL	355	1231.80617978			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	4.60271086				
FLAG	0.44410688	0.20015654	11.28663384	4.92	0.0272
CAP1	0.72873506	0.19281955	32.74660021	14.28	0.0002
CPOOR	1.03730336	0.17213465	83.25376007	36.31	0.0001
NONNOR	-0.39241634	0.15162961	15.31476173	6.68	0.0102
CIVEMPL	0.49715728	0.17901939	17.68139276	7.71	0.0058
PROFSPEC	0.41055640	0.20368880	9.31408665	4.06	0.0448
TELE	-0.73600918	0.31475215	12.53597374	5.47	0.0199
UNSCHED	0.66145927	0.36663988	7.46200983	3.25	0.0721
FORMAL	1.01372556	0.37759047	16.52447796	7.21	0.0076
CEREMONY	-1.51247266	0.35370608	41.91978296	18.28	0.0001
WATCH	-1.68439288	0.21148908	145.42528053	63.43	0.0001

FORWARD SELECTION PROCEDURE FOR DEPENDENT VARIABLE GRADE
NO OTHER VARIABLES MET THE 0.1500 SIGNIFICANCE LEVEL FOR ENTRY

CROSS-VALIDATION

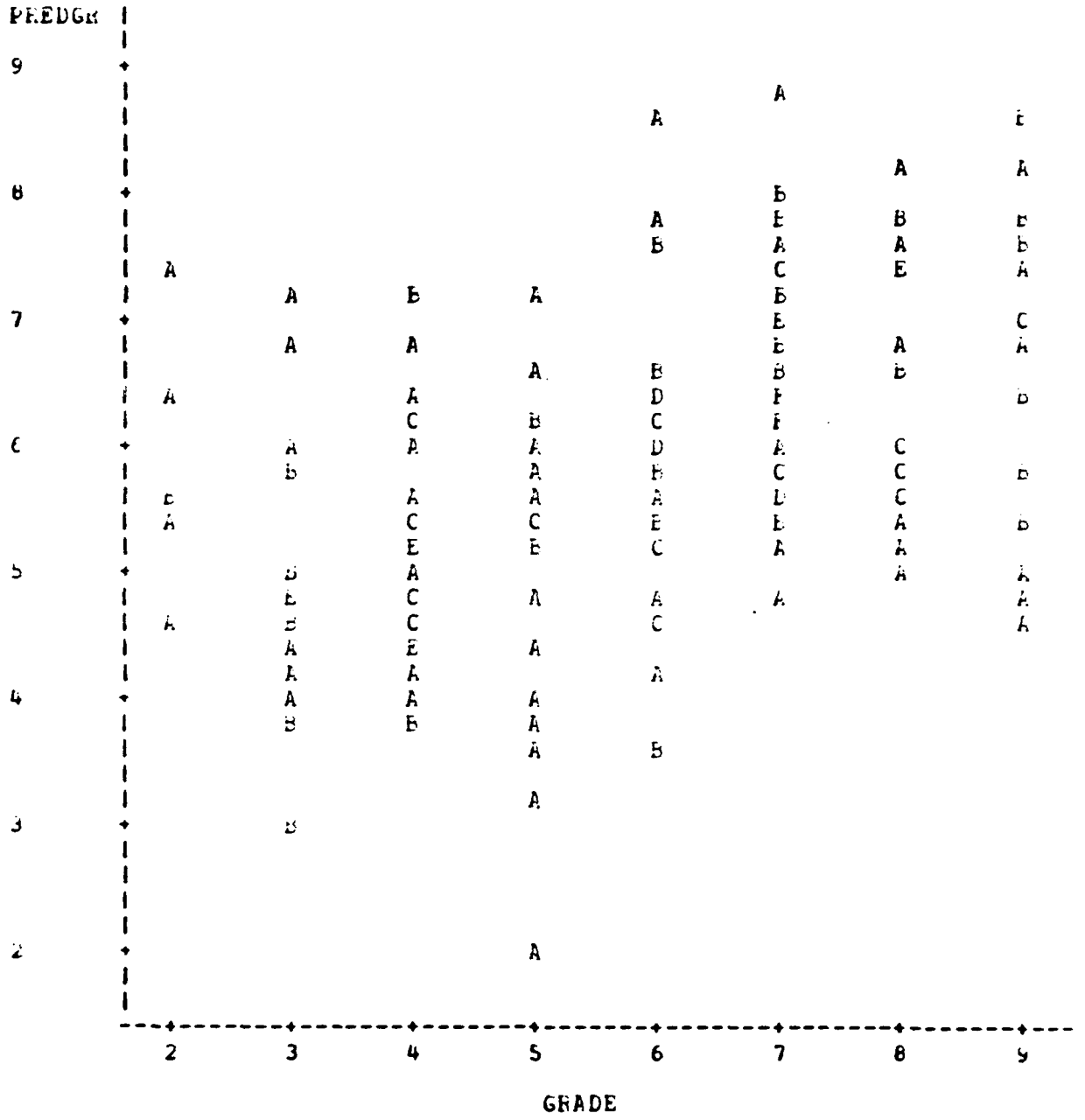
VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
GRADE	200	5.915000	1.958616	1183.000	2.000000	9.000000
PREDGR	201	5.875162	1.237575	1180.908	2.000720	8.717232

CORRELATION COEFFICIENTS / NUMBER OF OBSERVATIONS

	GRADE	PREDGR
GRADE	1.00000 200	0.50380 200
PREDGR	0.50380 200	1.00000 201

PLOT OF CROSS-VALIDATION OBSERVATIONS

PLOT OF PREDGR*GRADE LEGEND: A = 1 OBS, B = 2 OBS, ETC.



NOTE: 1 OBS HAD MISSING VALUES

APPENDIX J

RATINGS WORKED WITH DAILY

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
WW1	AC	0.07	0.26
WW2	AC	0.09	0.29
WW3	PE	0.03	0.16
WW4	AN	0.11	0.32
WW5	AR	0.04	0.20
WW6	AWA	0.02	0.15
WW7	AWN	0.02	0.13
WW8	AWH	0.01	0.11
WW9	AX	0.03	0.17
WW10	AB	0.05	0.23
WW11	ABH	0.06	0.24
WW12	ABF	0.05	0.22
WW13	ABB	0.05	0.21
WW14	AE	0.07	0.25
WW15	AI	0.05	0.21
WW16	AW	0.03	0.17
WW17	AD	0.05	0.22
WW18	AZ	0.06	0.24
WW19	AO	0.05	0.22
WW20	AR	0.07	0.26
WW21	AM	0.03	0.17
WW22	AMM	0.05	0.21
WW23	AME	0.04	0.20
WW24	AMS	0.05	0.21
WW25	AS	0.03	0.16
WW26	ASF	0.02	0.13
WW27	ASM	0.02	0.13
WW28	EM	0.16	0.37
WW29	EI	0.10	0.30
WW30	EU	0.06	0.23
WW31	CM	0.03	0.16
WW32	CE	0.04	0.19
WW33	CN	0.03	0.16
WW34	CIA	0.03	0.16
WW35	CIM	0.02	0.13
WW36	CIC	0.04	0.19
WW37	CII	0.01	0.09
WW38	CIM	0.02	0.15
WW39	CII	0.03	0.16
WW40	DP	0.14	0.34
WW41	DS	0.09	0.29
WW42	DI	0.09	0.28
WW43	DN	0.05	0.23
WW44	DR	0.14	0.35
WW45	EM	0.10	0.29
WW46	ET	0.15	0.36
WW47	EW	0.06	0.24

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
WW46	EA	0.03	0.17
WW45	EN	0.06	0.24
WW50	EO	0.03	0.16
WW51	ET	0.04	0.20
WW52	ETE	0.01	0.12
WW53	ETG	0.04	0.19
WW54	FC	0.07	0.25
WW55	FN	0.06	0.27
WW56	GS	0.01	0.12
WW57	GSE	0.02	0.15
WW58	GSM	0.02	0.13
WW59	GM	0.05	0.21
WW60	GMG	0.09	0.29
WW61	GMM	0.04	0.20
WW62	GMT	0.05	0.22
WW63	HM	0.16	0.37
WW64	HN	0.07	0.25
WW65	HT	0.08	0.28
WW66	IM	0.04	0.19
WW67	IN	0.02	0.14
WW68	IS	0.07	0.25
WW69	IC	0.10	0.29
WW70	JO	0.09	0.28
WW71	LN	0.09	0.29
WW72	LT	0.03	0.18
WW73	MM	0.06	0.23
WW74	MN	0.11	0.31
WW75	MA	0.13	0.34
WW76	MS	0.11	0.32
WW77	MN	0.01	0.09
WW78	MT	0.01	0.08
WW79	ML	0.01	0.11
WW80	MO	0.00	0.06
WW81	NC	0.13	0.34
WW82	OTA	0.01	0.11
WW83	OTM	0.01	0.08
WW84	OS	0.10	0.30
WW85	OM	0.02	0.13
WW86	PM	0.01	0.12
WW87	PN	0.25	0.43
WW88	PH	0.08	0.28
WW89	PC	0.08	0.27
WW90	QM	0.10	0.30
WW91	RM	0.13	0.33
WW92	RP	0.09	0.28
WW93	SN	0.15	0.36
WW94	SH	0.10	0.30

VARIABLE	LABEL	MEAN	STANDARD DEVIATION
WW95	SM	0.06	0.24
WW96	SI	0.03	0.17
WW97	STS	0.03	0.16
WW98	SIG	0.06	0.24
WW99	SW	0.03	0.1[illegible]
WW100	SK	0.19	0.39
WW101	IM	0.05	0.22
WW102	IMO	0.02	0.13
WW103	IMT	0.03	0.1[illegible]
WW104	ID	0.01	0.11
WW105	UT	0.03	0.1[illegible]
WW106	WT	0.01	0.12
WW107	YN	0.35	0.48
WORKWITH	COUNT OF RATINGS WORKED WITH DAILY	6.64	9.64

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